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RAIL-ROAD NEWS.

New Iron Bridge.

A new iron bridge has lately been constructed over the Conemaugh river on the Pensylvania Railroad. It is 380 feet long, has 5 spans 76 feet each and two truss frames of 71-2 feet each, each span is divided into 18 panels, 16 of which are four feet, and the other two four and a half feet long, leaving at each end panels of one and a half feet. Each panel has one main brace of one and a quarter, and two counter braces of one one and a half round iron, well secured at the top and bottom to angle blocks by large nuts. The upper chord or cap piece is made of cast-iron, in lengths of 12 feet, the area, a section of the chord, being 15 1-2 inches. The lower chord is made of four bars of wrought-iron, each three-quarters —six and a half inches lying edgewise one and a half inches apart. The arches are of cast-iron, and are secured to the posts in each truss frame by strong bolts. The arches weigh fifteen tons.

Its capacity for sustaining immense weights may be judged from the fact, that a locomotive weighing twenty-five tons, standing on the centre of a span, caused it to yield only 15-1000 of a foot.

There were but 69½ tons of cast-iron, and 64 1-2 tons of wrought-iron used in its construction, and cost but $11,470; so that on the score of economy it is decidedly preferable to wooden structures.

It is stated to be an improvement on the Pratt Bridge, designed by E. Miller, C. E.

Reduction of Fare on the Baltimore and Ohio Railroad.

At the stated meeting of the Board of Directors of the Baltimore and Ohio Railroad Company, this day, says the Baltimore Patriot, we learn that a reduction was made in the passenger fare from Baltimore to Cumberland, and intermediate points. The through fare to Cumberland will hereafter be charged at $5, instead of $7, as heretofore. The new tariff to commence at the commencement of the fiscal year, on the 1st of October.

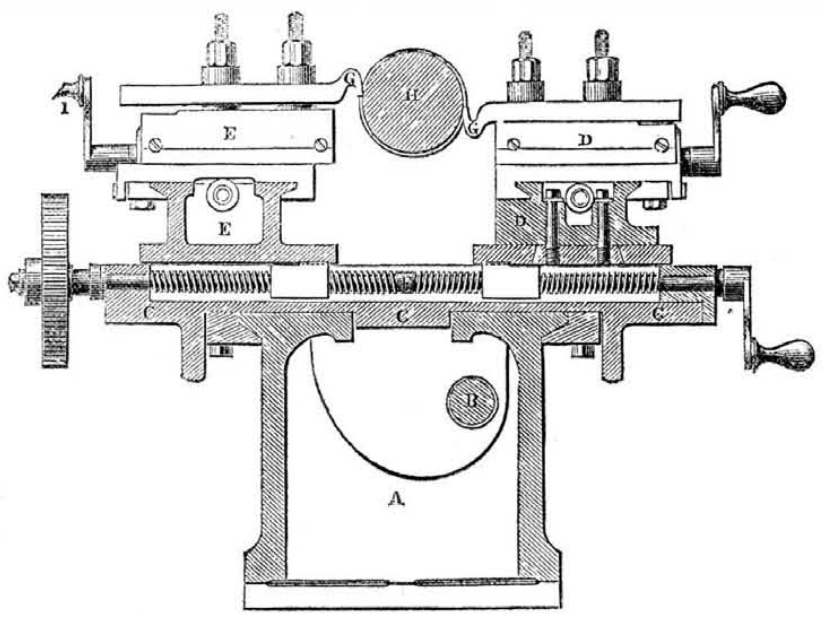
We also learn that the company has reduced its rate on the transportation of coal 15 cents, equivalent, with existing rates, to $2 per ton to private wharf owners.

A railroad meeting was held at St. Johns, New Brunswick, on Saturday the 20th inst. at the Commercial Bank, at which Mr. C. D. Archibald, on behalf of his friends, subscribed for £80,000 of stock in the European and North American Railroad. The deposit of £100,000 will be paid in and notice immediately given for a meeting of stockholders to organize the company.

The Boston Railroad Jubilee ended on last Friday. It was a grand affair throughout, and did great credit to the people of Boston,—but they know how to do up such affairs.

The designer of the yacht America, even to the cut of her sails, is Mr. George Steers, a young ship architect, of this city. The model is still in his possession.

TURNING LATHE IMPROVEMENTS.---Fig. 1

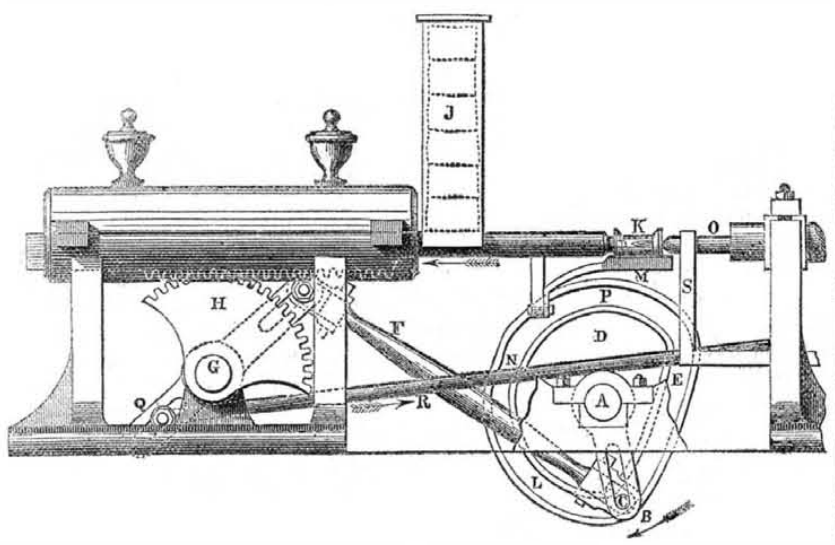


Duplex Lathe.—This, (fig. 1) is a transverse section of a lathe bed with the standards removed, and the slide rests in section.

A is the lathe bed; B is the guide screw; C is the bottom of slide rest or carriage upon which is carried the compound slide rest, D, in front of the lathe, and a similar one, E, is fitted on the other side. This is the only new feature about it. The two slides are moved simultaneously in and out by the right and left screw spindle, F, so that the back and front tools, G, are taken in and out, to act upon the work, H, at one time. This arrangement is applicable for surface turning and screw turning. This arrangement will turn [illegible] single tool cutter, and it is superior, for the whole works more steadily, the forces being balanced, and all vibration done away with. It also produces better work on this very account, and it is much easier on the tools.

Quite a number of these lathes are in operation turning work at Messrs. Whitewater's establishment, in Manchester, England.

Figure 2.



Self-Feeding Bobin Lathe.—The accompanying engraving, (fig. 2) represents an improvement recently patented in England by Mr. James Findlay, Paisley, Scotland.

This lathe is for turning bobbins: the mandril carrying the bobbin blank is driven by a strap direct, but a transverse shaft, A, directs other movements of the machinery for making the whole of it self-acting: the transverse shaft has two scroll pulleys, having differential spiral grooves cut on their peripheries, so as to produce a species of irregular right and left spiral in one continuous length. Each tool-holder has a pin projecting from the lower surface down into the spiral groove of its corresponding scroll pulley, so that the continuous revolution of the shaft, with its two pulleys, in one direction, traverses both holders, back and forward, to the extent of the run of the spirals. The action of these spirals gives the tools a quick traverse when out of cut, and a slow one during the time they are forming the bobbin. The junction of the opposite ends of the spirals has a straight portion cut at right angles to the axis of the scroll pulley, and joins up to the spirals by quick curves; this is to allow the tool-holders to come to a stop when drawn back for the adjusment of a fresh blank of wood. The main shaft, A, projects behind the two scroll pulleys, and has a slotted crank lever, B, upon its end. Motion is given to the shaft by a belt pulley, D: the pin, C, of the lever passes transversely through the slot, projecting far enough on each side to enable its ends to enter the differential grooves, E L N P, in the inner faces of two vertical disc plates, bolted down to fixed standards behind the head-stocks: the pin, C, also passes through the eye of a connecting rod, F, the opposite eye of which is jointed to a pin adjusted in any fixed position in the slot of a crank lever keyed on a second horizontal shaft, G: this shaft has upon its front end a toothed segment, H, the teeth of which project through a slot in the lower side of the adjustable head-stocks, and gear with rack teeth formed on the lower side of the traversing bar. J is a hopper to receive the blank pieces to form the bobbins; they are placed one above another, as represented by the dotted lines: this hopper is held fixed over the centre of the traversing bar, by a bracket, and is open at both ends, the bottom one being grooved out to fit loosely over the bar which traverses beneath it. The engraving represents a thread bobbin, K, just finished, and it is about to be removed from the mandril in readiness for the reception of a new rough piece of wood for another bobbin. The pin, C, travelling in the direction of the arrow, is just about to enter the concentric portion, L, of the groove, and this portion being curved to a radius equal to that of the crank, B, when the pin is at the extreme outer end of its slot, it follows that the crank communicates its full effect to the connecting rod, F, at this point of its travel. In this way the bar with the rack teeth on it, which is moved by H, is traversed outwards in the direction of the arrow, to release the finished bobbin and receive a new blank piece of wood. A projecting bar is fastened to the lower side of the traversing bar, to carry a small cup rest, M: the bar moves outwards till this cup rest comes beneath the case, J, when the lowest rough piece in the hopper drops into it. To allow time for this movement, the grooves in the disc plates are made at N. to curve inwards towards the centre to a radius equal to the length of the connecting rod, F, so that when the pin, C, arrives at this point, it traverses through the curves without communicating any motion to the transversing bar which carries the bobbin; the slot in the crank, B, allows the pin to traverse inwards towards the centre of the shaft to compensate for the variation in the differential curves.

When the blank has been received into the cup, M, the traversing bar moves forward to carry the blank up to the arbor of the mandril, O, where it is turned by the tool (not shown) in the slide rest, acting upon it: this forward movement of the traversing bar, is effected by the onward movement of the crank, B, the pin of which next enters the second concentric curves, P, corresponding to those marked L. To allow time for the cutting action, the differential grooves are formed with another distinct curve, as at E, diametrically opposite to those at N, and are like them, of the same radius, so that when the pin arrives at this portion of its travel it gives no movement to the traversing bobbin bar until it enters the part E: the self-acting motion to remove the bobbin is effected by the crank, Q, working the connecting rod, R, passing behind the head-stocks to the back end of a double lever, the front end of which is jointed to a horizontal sliding bar passed through the two standards of the fixed headstocks as a guide, and bent up at a right angle, the end with the eye, S, fitting loosely to the mandril immediately behind the bobbin. As soon as the traversing bar begins to move back for another rough piece, the sliding eye, S, is actuated, and pushes off the bobbin. This machine is in operation in Paisley, and has turned off 34 bobbins in one minute.

Safety Valves in Steamboats.

The following important provision appears in the late act of the British Parliament on steam navigation:—

"After the 31st of March, 1852, it shall not be lawful for any steamboat, of which surveys are required, to go to sea, or to steam upon the rivers of the United Kingdom, without having a safety-valve upon each boiler free from the care of the engineer, and out of his control and inteference, and snch safety-valve shall be deemed to be necessary part of the machinery, upon the sufficiency of which the engineer surveyor is to report."

This month, so far, has been singularly dry and free from rain storms. This, we believe, accords with Prof. Loomis' observations respecting the equinox season.

Eight million pounds of wool have been sent to the Eastern markets this year from Ohio.

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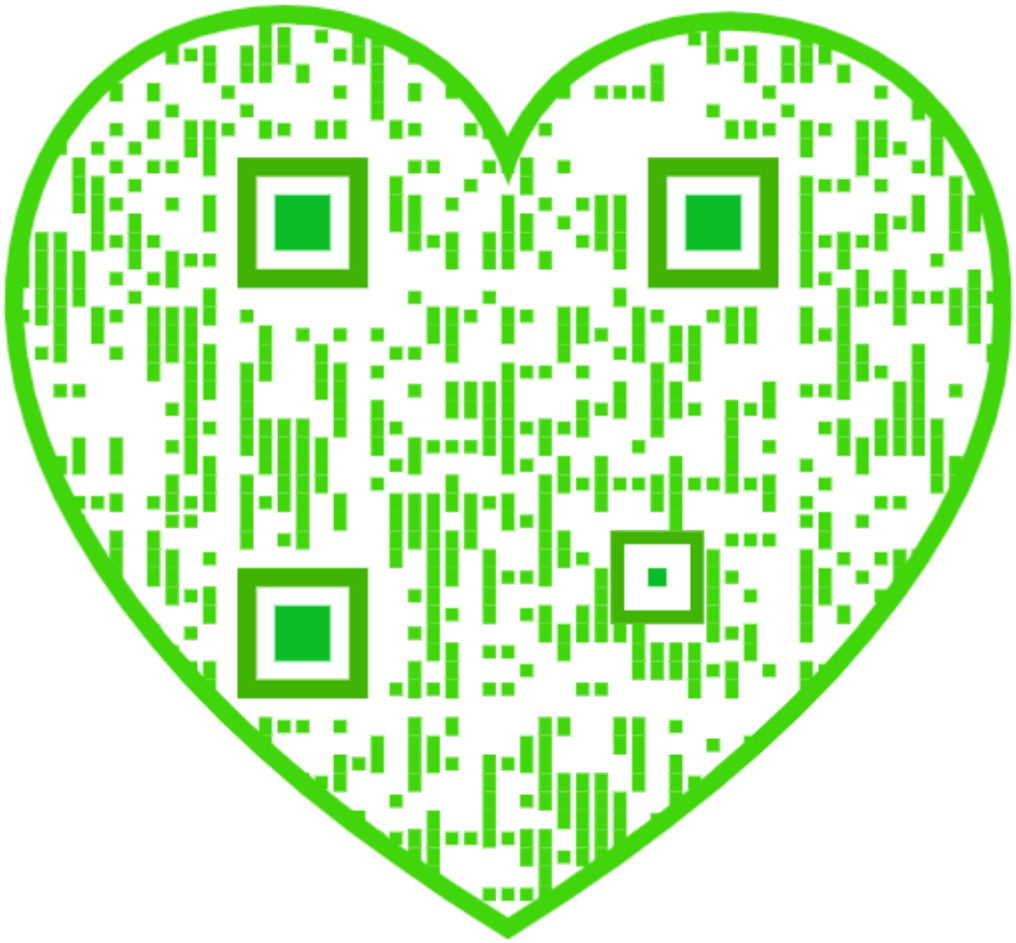

MISCELLANEOUS.

Foreign Correspondence.

LONDON, Sept. 5, 1851.

The Great Exhibition is slacking off, but this leaves a little more space for those who desire leisure and quietness in their examinations.

The excitement about the victory of the Yacht America is by no means allayed, even after her sale; but, as in all such victories, we hear of this and that person offering to build a yacht to beat her, and all such stuff. The naval prestige of England has been greatly sullied by this event, for the defeat was given against all odds.

Mr. Hobbs having succeeded in opening the famous Bramah Lock, the Illustrated London News presents an engraving of it, and freely acknowledges this other triumph of American genius, in picking the greatest Lock in all Old England. On the other hand there are those who assert that Mr. Bramah gave Mr. Hobbs too much latitude and time in working at their lock, owing to too great self-confidence in its unpickability. The lock has been opened, that's one fact; and an American, Mr. Hobbs, has done it, that's another fact, and the next is, that the American lock has not yet been picked. But how long this may be it is difficult to tell, as no one has yet tried it, but a Mr. Hinton has offered, it is said, £500, as a stake, that he will produce a man to pick Hobbs' Lock, or, rather, Day & Newell's, of which he is the agent.—What the result may be is easy, I think, to determine—the lock will not be picked, for it is a *nailer* to all common instruments.

The medals to be awarded will be numerous, and each will have a separate neat case to contain it. An order has been issued by Mr. Digby Wyatt, the Secretary of the Ex. Com. to have 15,000 cases prepared. The medals will be about two inches in diameter and one-eighth of an inch in thickness.

The American "Spring Chair" of Mr. Warren, of Troy, N. Y., which was illustrated in the Scientific American, has adorned all the London illuminated papers; it has received universal praise.

Two new presses, "Dick's Celebrated Anti-friction," have lately been added to the American Department. These presses have met with universal approbation, and they deserved it.

A poor blacksmith has recently sent in a Lock to the Exhibition, which he asserts cannot be picked, and as he has no money to spare as a reward for picking, he has expressed the desire that Mr. Hobbs should be permitted by the Ex. Com., to try his skill upon it. The key of it has eight secret wards, and is of a square form.

In the East Indian Department there is the most ingenious display of fine cutlery, for cutting and killing, that I ever saw. The Orientals must be a daggerly set, and like stabbing as well as rice. The most beautiful daggers, chased with gold and silver and precious stones, some with five or six secret blades and fearful spear points, seem to baffle the European cutlers to account for the manner of their construction. There is, therefore, ingenuity in the semi-barbarian in his own line, as well as in the polished Frank in his. There is one singular production from Hindostan, which has attracted much attention: it is a species of silk, but is found wild, growing in luxuriant profusion in all the Indian jungles. It is as yet unknown in Europe, though the population of the East have, for many centuries, employed it in every kind of furniture and garment. It is spun by the worms in a manner somewhat similar to what we see of caterpillars' nests and webs in our own orchards. It hangs suspended from the branches of trees, and is bleached and hardened in the sunshine for months of the season. Gathered and manufactured for use there is no fabric to compare with it for softness and durability. Like the beds and domestic furniture of our mediæval ancestors, bequeathed to their descendants from generation to generation, the Hindoo families hand down their wild silk curtains and clothes to their successors for an hundred years without their being worn out; but, to insure their preservation, the articles must only be washed in cold water. If ever submitted to hot water they rot and perish as if consumed by the action of fire. This is probably owing to the silk being impregnated with some tenacious and durable gum, similar to the caoutchouc or gutta percha, which, being soluble in hot water, is removed from the fabric. Like gutta percha, which was unknown in America six years ago, and nearly as little in England, but which is now universally used, this wild silk may yet create a revolution in domestic fabrics. The East India Empire is a rich one to England, but with our great variety of climate in the United State, there can be no doubt but our useful natural productions are not half known. We may have plenty of wild silk in our southern jungles also.

EXCELSIOR.

Railroad Jubilee.

BOSTON, Sept. 19, 1851.

We have had a grand time of it here. The President and his Cabinet arrived on Wednesday: when Millard Fillmore set foot on soil of the Old Bay State, he was met at Fall River and greeted with a welcome from Gen. Wilson, President of the Massachusetts Senate; and when he arrived in this city there was a fine procession accompanied him to the State House, where the public ceremony of reception was performed. Mr. Webster was there. and looked like the Saul of the Cabinet in all things. Gov. Boutwell made a good speech of welcome; and the President, who has the advantage of being a good spokesman, made a suitable reply; Mr. Stuart, of Virginia, made some excellent remarks, but Daniel was prince of the lions. His speech, as it relates to American energy and genius, deserves to be made known. I will endeavor to give you the substance of it. He said, "We have a million of people living on a very small surface—on a sterile soil and beneath an inclement sky; and yet we are full of happiness, and all, as we say in the country, 'well to do in the world, and enjoying neighbors fare.' [Cheers.] Now, that must be owing to wise legislation; it must be owing to great economy and prudence among the people; it must be owing to a system of education; it must be owing to something that is not in the earth nor in the sky, but in the soul and heart of man and woman and child; and these, I hope, will prosper. I have passed some part of my life in the administration of the affairs of the country. The years of human life wear away. Sir, I shall perform such services for no such other length of time, but with every increasing year and day and hour, the more I contemplate the history of this country—the great destiny of this country—the more I see it I contemplate it—as stretching from sea to sea and from the rivers to the ends of the earth. The more I see it exhibit the American genius at home and abroad, the more I see what exhibitions of skills have astonished Europe in this one summer, [sensation] the more I am surprised and gratified.

Why, Sir, the bitterest, the ablest, the most anti-American press in all Europe, within a fortnight, has stated that in everthing valuable, in everything that is for human improvement, the United States go so far ahead of everybody else as to leave nobody else in sight. It is like the position of Jove among the gods: Jove is first and there is no second; and in another paper, influential in the Councils of Great Britain, the Editor says, "The time may come—he might have said and *now is*—when America shall command the ocean, and both oceans, and *all* oceans." This results, partly, from the skill of individuals, and partly from the untiring ingenuity of the people, and partly from those great events which have given us the ocean of one world on one side, and the ocean of the other world on the other."

Yesterday there was an excursion down the harbor, and more than 4,000 people embarked on five steamers provided for the purpose, and two of the revenue cutters. A great number of gentlemen from different parts of the country attended; there was quite a large number of British officers from Canada. It passed off well.

Lord Elgin, Governor General of Canada, and a descendant of the great Bruce, arrived at 5 P. M., he having come through Western New York. He is a very affable gentleman, and was gladly welcomed by the Mayor, and made a most capital speech in reply; and last night he was introduced to President Fillmore, and the two had a very friendly confab.

This Railroad Jubilee is held in honor of the introduction of Railroads into Massachusetts—and well does it deserve such a celebration; but, like the majority of our public demonstrations, mere politicians are put in the front ranks, and the real bone and sinew men are put in the second. Political figuring and intriguing are too common among us. Our great engineers and mechanics—those men who do the real work, the substantial performances, are generally appointed to low seats at the end of the table. STARK.

Rhode Island Fair.—Paine's Light.

We learn by the Manufacturers' and Farmers' Journal, Providence, that the Fair, this year, has been very excellent. One novel feature in the exhibition was Paine's Gas Light, respecting which the Editor says:—

"Paine's Gas was exhibited last evening, and will be exhibited this and each succeeding evening. Owing to some defect or accident in putting up his fixtures, Mr. Paine said that the gas did not display its full power. Still it was the brightest light in the room."

We have seen two or three notices of Mr. "Paine's Light" lately, but we must inform the public that this is not the Water Gas so highly eulogised by Mr. Wright, of Boston, who called Paine the second Prometheus, and by whose Water Gas the world was just about to be revolutionized, as asserted by such professors to Scientific knowledge as Prof. Colton and some others; no, it is not this light—it has been dropped, and what we said about it has come to pass. The light spoken of above is a new light, not made from water, but from the atmosphere, it is said. A friend of ours, and a valued correspondent, was at the above mentioned Fair, saw the "Light," and was solicited to purchase "a right" for a New England city, although no Patent Right has been obtained by Mr. Paine. He says, in describing the apparatus, "the gas of air catalyzed was passed through the stem branches of the common argand lamp, and emitted a brilliant light. The pipes were filled from an air mattress or bag-like a pair of bellows. He placed in he hands of spectators a vial half-filled with a semi-transparent fluid (the alleged secret) with two small tubes inserted below its surface, through the cork; on breathing through one, and applying a match at the other, a flame like that of a camphene lamp, continued to flicker, but expired with the cessation of breathing."

There is no catalyzation about this process; it is old and well known that the common atmosphere, when blown by the breath, through naptha, takes up some of this volatile hydrocarbon and produces a good flame. We mentioned this on page 201 of our last volume, and said that this process had been known to us for twelve years. Benzole is also a hydro-carbon of a peculiar quality for giving out light by the passage of hydrogen through it. About fourteen years ago a patent was taken out in England for making our common coal gas about 20 per cent. more illuminating, by simply passing it through naptha. In respeat to the nature of our chemical lights, not a good one can be produced without the combustion of solid particles; the gases to produce the incomparable Drummond Light, give but a pale flame, until the piece of lime on which they are burned is ignited. The catalyzation of the atmosphere to produce a good light, is out of the question. It is not the production of a good light that is now wanted—it is a cheap good light; and no light will be successful unless it can be produced at less expense than common coal gas light.

The State Fair.

ROCHESTER, Sept. 19th, 1851.

This is certainly the greatest Fair ever held in our State, at least the officers of the State Agricultural Society say so, and they are surely the best judges. The grounds are situated a little over a mile out of the city, and are well adapted for the purpose, and a thousand-fold better than the grounds on which the Fair was held at Albany last year, for the visitors are not compelled to stand up to the knees in mud to see the sights. The grounds occupy a space of about 30 acres. The price of admission is 1 shilling each, and I suppose that no less than 80,000 were on the ground yesterday. There are a great number of Canadians here; they are in the capacity of visitors and exhibitors, and show well both in implements and personal appearance; they are from Canada West, Lord Elgin was here on Tuesday, and expressed his pleasure at the quality of the exhibition.

Yesterday morning a levee was held at the tent of Mr. Delafield, the President, a gentleman and scientific agriculturist. It was graced with the elite of both sexes, from many parts of our country.

The show of agricultural implements is good, but it is impossible to speak of them singly, as no less than 1,600 entries have been made, and these embrace more than 3,000 articles. The farmers of Western New York, are very enterprising and are quite enthusiastic in the introduction of new improvements. Of one thing, however, I am convinced, that it would be much to the advantage of the exhibition, if it was permanently located. Rochester or Syracuse would perhaps be the best places for its permanent abode. The only drawback would be the possibility of general interest in our farmers being weaned away, for it is a fact, that the change of locality every year causes greater excitement than if it was confined to one place. R. M.

Mode of Calculating River Velocity.

The mean velocity of water in a cross-section is equal to 96·3 times the square root of the area of the cross-section, multiplied by the fall and divided by the perimeter multiplied by the length.

For example: If the breadth of the river Mississippi be 2,000 feet, the mean depth 80 feet, or the area of the cross-section 160,000 square feet, the perimeter 2,160 feet, and the fall 12 feet in the length of 600,000 feet, the mean velocity will be 3,707 feet per second, and the quantity of water discharged 533,120 cubic feet per second. Again: If the breadth be only 1,600 feet, which will give the same area of cross-section, 160,000 square feet, the perimeter 1,800 feet, and the fall 12 feet in the length of 600,000 feet, the mean velocity will be 4,060 per second.

[The above are rules taken from De Bow's Review. As a general formula, we suppose they may answer very well; but for every river separate experiments are positively necessary for positive facts, owing to the form of the banks and the form of the bottom.

Boston Science.

The Boston Transcript says the subject of "Spiritual Rappings" continues to exercise the attention of some of the most scientific men of Boston, and baffle all their attempts at a solution. Certainly science must be at a loss for subjects in Boston. Has it exhausted mechanics, chemistry, &c., that it has to resort to such impudent delusions? or is it the subject suited in the science of that region?

[Not a solitary man of science, we believe, has troubled his head with such stuff. There are some pretenders to science, who, by much assurance, but little sense, contrive to get a kind of ephemeral fame; these are the kind of men who make a great ado about everything new and nonsensical.

The Lion's Tongue.

To be licked by the tongue of a dog is a mark of affection; but such a demonstration from a lion would be productive of unpleasant consequences. The tongues of the lion and tiger tribes are covered with a thicket of strong horny papillæ, the points directed backward, fitting it rather for sweeping off fragments of meat from bones, for which it is especially employed, than for gustatory enjoyment or expression of endearment. The sense of taste is very low in all the felinæ, of which an example is presented in the favorite amusements of cats, called "dressing their fur." When changing their coats, the hairs are swept off in hundreds by the rough tongue, without causing the slightest annoyance, whereas, the presence of even a single hair in the human mouth, is notoriously unpleasant—simply from the greater perfection of the nervous influence.

Planing Machine.

It was our intention to have in an engraving of Beardslee's Planing Machine, this number, but owing to the artist being unable to complete it in time, it is delayed for another week.

Our subscribers are doing bravely, but the more the better for all. This volume will stand unrivalled in every respect.

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Science and Arts, Improvements &c.

ELECTRO-MAGNETISM AS A MOTIVE POWER.—At Portsmouth, on Wednesday, says the London Mining Journal, the Lords of the Admiralty inspected the model invented by Mr. Hay (for auxiliary screw vessels) to supersede steam.

As the motive power the galvanic battery is to supply the place of the boiler, the machinery will be much less cumbersome, occupy much less space, and be less complicated than the ordinary steam-engine; great space will be obtained for provisions, &c., now occupied by the coal bunkers, steam funnel, casing, &c. Their lordships felt much interested and remained a considerable time inspecting the arrangements, paying considerable attention to the observations of Mr. Hay, who merely asked their permission for trifling alterations to be made in the fly-wheel and beam, and stated that nothing more would be worth while doing until the economical battery he had at present under trial had succeeded; that all battery arrangements brought under his notice had been carefully tested for the purpose, and any others proposed he would willingly submit to the test, to ascertain their value as applied to give motive power, which would be attended with very little cost, by his power testing machine. In the battery they used, the chief consumption was in sea water infused as one of the elements of the battery arrangements.

Prof. Jacobi, we believe, was the first person who applied electro magnetism to propel a vessel, and he was very successful, still it is not by any means so economical a power as steam. Some important discovery in electro-chemistry, may render it as economical, and to that quarter alone must the electro motive power inventors look for success; under that department they can, we believe, labor with hopes of ultimate success.

THE NEW MOTOR, OR CARBONIC ACID GAS ENGINE.—The Cincinnatti Gazette gives the following particulars of this (said to be) new motor invented by a Mr. Solomon, in that city and briefly noticed by us in our last volume:

"On Monday last an engine was kept in operation during the day, and hundreds of spectators witnessed and were astonished at its success. Common whiting, sulphuric acid, and water, are used in generating this gas, and the "boiler" in which these component parts are held is similar in shape and size to a common bomb-shell. A small furnace, with a handful of ignited charcoal, furnishes the requisite heat for propelling this engine of 25 horse power. The relative power of steam and carbonic acid is thus stated:—Water at the boiling point gives a pressure of 15 lbs. to the square inch; with the addition of 30 degrees of heat the power is double, giving 30 lbs.; and so on, doubling with every addition of 30 degrees of heat, until we have 4,840 lbs., under a heat of 452 degrees—a heat which no engine can endure. But with the carbon, 20 degrees above boiling point give 1,080 lbs.; 40 degrees give 2,168 lbs.; 80 degrees 4,320 lbs. —that is, 480 lbs. greater power with this gas than 451 degrees of heat give by converting water into steam. Not only does this invention multiply power indefinitely,. but it reduces the expense to a merely nominal amount. The item of fuel for a first class steamer between Cincinnati and New Orleans, going and returning, is between $1,000 and $1,200; whereas, $5 will furnish the material for propelling the same distance by carbon. Attached to the new engine is also an apparatus for condensing the gas after it has passed through the cylinders, and returning it again to the starting place, thus using it over and over, and allowing none to escape. While the engine was operation on Monday, it lifted a weight of 1,200 lbs. up the distance of five feet perpendicular, five times every minute. Te weight was put on by way of experiment, and does by no means indicate the full power of the engine. Mr. Solomon will immediately commence the construction of another engine of 350 horse power on the same principle."

The above engine is anything but new in the application of the materials to produce mechanical action, but they are far more expensive than steam. This however is not known but to those who have been practically acquainted with the subject of prime motors In 1823 (we believe it was) the ingenious elder Brunnel took out a patent for a carbonic acid gas engine, but he failed with his splendid talents to do any good with it.

TELEGRAPH IMPROVEMENTS.—The Philadelphia Inquirer comes to us marked at a description by a correspondent of the new improvement recently made in telegraph apparatus by Mr. Barnes an able telegraph engineer. It is an improvement to remedy the difficulties of atmospheric electricity, especially in our Southern States, which almost daily prevents telegraphic operations.—It says:

"The difficulties arising from atmospheric electricity were two-fold. The lesser demonstrations would completely destroy the "adjustability" of the instrument, and the greater ones would destroy a portion of the instrument itself, by melting the small wire of the apparatus in connection with the line. Here would be a full stop of operations—in the first case, till the slight storm had passed, and in the latter place, till the instrument could be repaired.

In the latitude of New Orleans, for a greater portion of the year, it is seldom that any successful operation can be had until after nightfall.

By the invention of Mr. Barnes, this difficulty is entirely remedied in a manner at once so simple, and yet so perfect, that it is only to be wondered at, that the secret had not been discovered, and in extensive use before this."

NEW MACHINE FOR MAKING MOULDINGS.—We yesterday, says the Philadelphia Ledger, saw some samples of the work produced by a new Patent Moulding Machine, which was put in operation by Mr. E. D. Ashton, at Messrs. Mercer & Peechin's Planing Mill, foot of Washington street, Southwark. Mouldings were formerly worked by hand, at great expense of time and labor; but since machines have been introduced the difficulty has been to get a knife that would cut smooth enough to avoid the necessity of re-finishing with either hand-plane or sand-paper. The difficulty is overcome in the present machine. The samples exhibited to us are smooth and ready for the paint, without any further finish, the work being done clean and perfect, as if the operation had been done by a hand-plane. The knife is so constructed that it will not alter its shape with sharpening, as happens with some of the machines in use, and, consequently, the same pattern may be precisely reproduced at any time. All the four sides are planed at one operation. This machine is the first of the kind which has been set up in Philadelphia.

MAYNARD'S GUN PRIMING.—The "Southern Press," Washington, publishes a very favorable notice of the useful invention of Dr. Maynard, of Charleston, for priming fire arms, as a substitute for the percussion cap, and everything else that has been tried for the same purpose heretofore. It says:—

The invention was brought to the notice of our Government, and it was considered worthy of a trial to test its efficiency. A joint board of distinguished officers of the army and navy was appointed, and a most severe and protracted trial was made.

The report made by the board was so full and favorable that the Government appointed another joint board, with the General-in-Chief as its president, to consider and report upon the propriety of a purchase of the patent right for the Government use. The board reported favorably, and the purchase was made.

Last year an order for a practical field trial was given, and two hundred muskets and thirty thousand primers were sent to Texas, where, for four months, they were subjected, by the United States troops, to the usual trials and exposures of military arms in field service. The report of the officers entrusted with this trial is alike gratifying and creditable to the inventor and interesting to all military and gun-using persons."

We have seen this invention and can speak highly of its merits.

DESTRUCTION OF AMERICAN FORESTS.—It seems scarcely possible for us of the present generation to conceive of the period when the country shall be stripped of its forests.

There is some reason to apprehend that masts and ship timber will, as cultivation advances, become scarce, unless some measures be taken to prevent their waste or provide for the preservation of a sufficient fund of both. Some idea may be formed of the rapid destruction of the white pine, by a few facts. In 1843, there were at Bangor, at one time, 14,000,000 feet of lumber, worth $200,000. This city is the largest lumber port in the world. It ships off annually, of the various kinds of lumber the value of $1,500,000 to $2,000,000; and the rest of the State about as much more. There are 1,500 saw mills in operation, which manufacture 300,000,000 feet of planks, boards, and timber, without making any estimate of shingles and laths. This is the production of one State. New York and Western Pennsylvania are also large manufacturers of lumber. In the western States, vast quantities of timber in trees are annually destroyed in the process of clearing land for cultivation On the banks of the Mississippi it is cut down for steamboat wood, and the ash and cypress of the swamps, are floated out for fuel and plantation use. On the coast, for 150 miles above New Orleans, the planters either purchase the trees in rafts or coal boats.

In the region of the yellow pine, extending through North and South Carolina, Georgia, Florida, and Alabama, the manufacture of turpentine is rapidly increasing, and with it the destruction of forests. The "pine barrens," are rapidly passing away.

Our locomotives are destroying square miles of timber every year, and in many places where stood the forest fifty years ago, a cord of wood cannot be purchased for less than a sum which would purchase six acres of land then. Our farmers do not seem to be making allowance, in raising a second growth of timber; a fact very little to their credit, for every farm should be surrounded with a wood belting of good trees, for the sake of shelter from high winds, and far the sake of supplying themselves with useful timber.

Great Exhibition---American Inventions.

The Illustrated News, in speaking of our department, says:—

"The triumphs of American industry may be much better traced in a modern map and a bundle of their almanacs for twenty years than in the miscellaneous museum which is distributed over the western end of the Crystal Palace. But, if we have laughed a little at their large promises and small performance, they cannot deny that we have given fair play and warm welcome to everything of merit.

For instance, to begin with agricultural Implements:—McCormick's reaping machine, which was described and illustrated in the Illustrated London News of the 12th ult., had a fair trial, at the annual gathering at Mechi's farm on the 29th ult. It rained in torrents, and mud and wet straw soon clogged the other instruments; but we have the authority, among others, of Mr. Fisher Hobbes, the well known agriculturist, and of the Council of the Royal Agricultural Society, who was present, for stating that McCormick's machine performed its work perfectly, and proved itself one of the most valuable agricultural inventions of the age.

This invention has arrived at the fortunate period, when the steady emigration of Irish laborers threatens to leave our farmers short of hands at every harvest. Even now the farmer is obliged, unless he lives on the highway where reapers are constantly passing, to reap all at once, whether his crops are fit for harvesting or not; so that some grain is left too long, and a large per centage is lost by over ripeness, and some is gathered too green. But with one of these machines the farmer can cut his corn exactly at the time that each field or part of a field is ripe. In fact, it is not too much to say that McCormick's machine has solved a national difficulty. The proprietor will be ready to bear witness that he found no impediments from British jealousy, and that his success was hailed with as much enthusiasm as the damp weather would allow.

Newell's lock, under the charge of Mr Hobbs, which has already been fully described and delinated, may take the second rank in value of the American contributions as a matter of commerce. For one person who will need one of these unpickable locks at £50 there will be a hundred who will be glad to purchase one of the reaping machines at £25, nevertheless, the lock is a first-rate articlee.

Mr. McCormick returned home in the Pacific on Sunday the 14th inst., highly gratified with his visit. The approbation bestowed upon his famous reaper is well deserved, and the great medal has been awarded to him by the Jurors.

The demand for them by our transatlantic brethren will doubtless be very great, and they will mistake the character of the enterprising patentee if they suppose that he will not be ready for them.

A correspondent of the Journal of Commerce, in reviewing our part of the exhibition, thus refers to the Meat Biscuit patented by G. Borden, Jr., of Galveston, Texas, the merits of which we have before noticed in the Scientific American.

"Of the 'substances used for food,' that which attracted most attention for its novelty and its adaption to numerous important practical uses in the "Meat Biscuit" of Mr. Gail Borden, Jr., of Texas. Its great value was so obvious, provided it were found to possess the qualities claimed for it, that it was submitted to very careful and repeated trials by the jury on "Substances used for Food," who had it cooked for themselves. Not content with this, they had analyses of it made in the laboratory of Dr. Lyon Playfair, the distinguished Commissioner in charge the Department of juries, for the purpose of testing its nutritive and preservative qualities. These analyses were made, of course, without the intervention in any way of the proprietor, Mr. Borden; I have obtained for him a certified copy of the letter of Dr. Playfair, communicating the same to the Jury. From this it appears that the preservative qualities of the Meat Biscuit are perfect; the fecula or farinaceous matter being also subjected to careful microscopic examination, its high nutritive properties are evinced, as the analyses show 32 per cent. of nitrogenous and flesh-forming materials. The jury marked their sense of its value by awarding the highest evidence of their approbation to its inventor. A small canister of it was sent to Sir John Herschel, who, unsolicited, wrote to Mr. B. a letter testifying to its excellence. Count de Kergolay has deemed it of such merit as to present it to the Agricultural Society of France, who highly appreciated it, and appointed one of its scientific Committees to investigate its qualities more thoroughly than could be done in general *seance*. Among the various preparations of food presented in the exhibition, no one was deemed worthy of the same high approbation as the Meat Biscuit. This was the only contribution, I believe from Texas."

Samples of this very nutritive substance may be seen at the office of John H. Brower & Co. in this city.

We shall take occasion soon to express our ideas concerning the causes which have operated against us during the progress of the fair.

Great Swimmer.

A letter from a correspondent of the London Morning Chronicle, at Vienna, says:—"There is a man here who offers to stake from £500, to £1,000, against all comers, that he will swim from Dover to Calais, in the month of August or September; the money to be deposited beforehand with a London banker. He has already swam, according to his own account, from Vienna to Presburg, down the Danube."

Perhaps he is a second Nicholas, with web hands and feet.

A Great Salt Well.

The Meigs County (O.) Telegraph says that Pomroy has the greatest salt well yet discovered in the United States. The well discharges in an unbroken stream fifty gallons of water per minute! The water will yield a bushel to each fifty gallons—a bushel a minute, or 240 bushels a day. There is water enough, making allowance for waste, for 200 bushels a day.

Air Spring for Cars.

"The editor of the Bridge port Farmer has been shown an air spring for railroad cars and other vehicles, invented by Mr. Edward Hamilton, of that city. It promises to be a valuable thing."

We hope it may. The air springs invented heretofore, for the purpose, have failed to accomplish the intended object.

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NEW INVENTIONS.

Improved Engine Lathe.

Messrs. Woodburn, Light & Co., machinists, Worcester, Mass., have constructed an Engine Lathe, the arrangement of which they have taken means to secure by letters patent. The carriage is made to slide on the front side of the way, or shears, instead of sliding upon the top; the upper part of the carriage is made in two sections; the first turns on a centre, and enables the operator to turn his work at either right or acute angles at pleasure. The second, or upper section, is made to elevate the tool by means of an eccentric, to be operated either by rack and pinion or screw and worm gear, or any analogous contrivance. The whole can, in a moment, be taken from the bottom part of the carriage, and leave it a platten or table convenient for boring cylinders, boxes, or any of the variety of boring usually done on a lathe; and also enables the operator to use, in turning shafting, the whole length of the lathe.

Improved Rotary Blower.

Mr. Silas Hawes, of Lynn, Mass., has taken measures to secure a patent for an improvement in blowers, which is termed "Hawes' Rotary Tornado Blowers." The nature of the improvement consists in the employment of a revolving wheel having recesses in either face exposed to the atmosphere, which recesses are formed by a central partition or foundation board, carrying suitably raised blocks and separating strips that receive the air between them, and cause it to be delivered through issues made in the rim of the wheel, which travels within an annular recess composing the shell or outside case, and which, as a reservoir, receives the air from the several issues of the wheel, and delivers it through several outlets as required. It is a simple and good arrangement in combining the air chamber with the blower case.

Improved Water Indicator.

Mr. Jacob Switzer, of Basil, Fairfield Co., Ohio, has taken measures to secure a patent for an improved gauge to ascertain the height of water in steam boilers. The improvement consists in the employment of valve or cock outlets at, or communicating with the top and bottom of the glass tube of the common indicator, which outlets, in connection with other stop cocks, (that admit the steam and water to the indicating tube) serve to allow of a stream of water being forced from the boiler up through the glass tube, or of a blast of steam passed down through it, outwards, for the purpose of cleaning the tube and keeping its sinterior clear and free from dirt, so as to allow the engineer to see the state of the boiler always at a glance.

Improved Lamp for Burning Camphene.

Mr. R. V. De Guinon, of Williamsburg, near this city, has invented and taken measures to secure a good improvement on lamps for burning camphene, to prevent accidents, too many of which, we are sorry to say, have taken place. The nature of this invention, to prevent explosions, is in constructing the reservoir of the lamp with a false bottom or chamber, communicating with which and the reservoir near the top, is a passage that serves to receive and conduct the camphene or other spirit fluid, away from the flame, as it increases in volume by expansion.

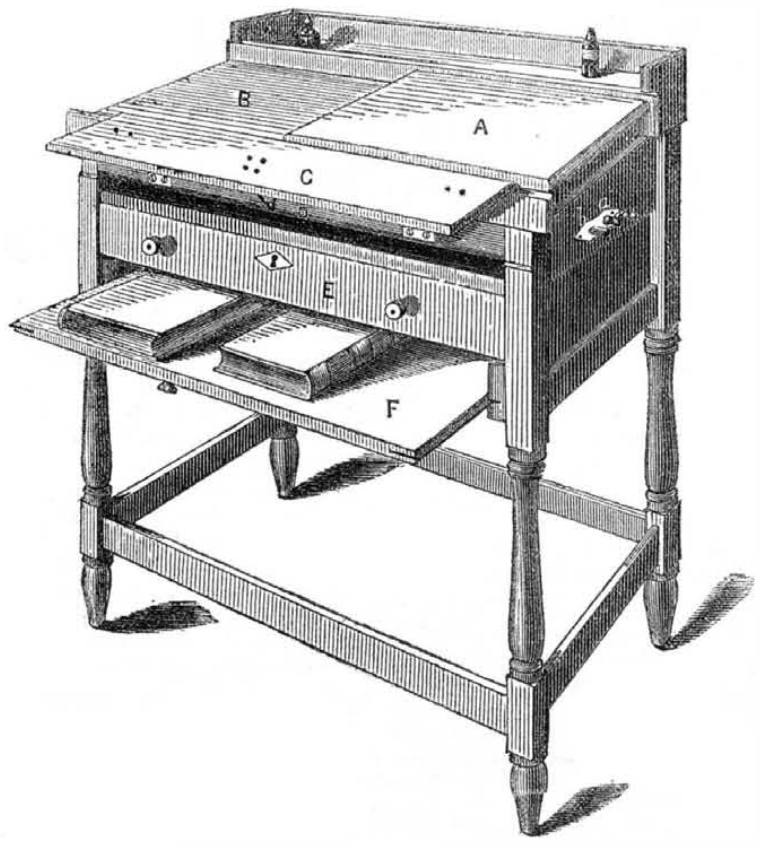
Improved Machine for Making Combs.

Mr. S. Curtis, of Newtown Ct.., has taken measures to secure a patent for a very ingenious and excellent invention in machinery for cutting the teeth of ladies' dress combs. The nature of this invention consists in having a series of cutters placed upon the periphery of a wheel which has two motions, one rotary and an intermitting up and down motion. The horn of which the combs are made is first cut into the required shape, in single pieces, out of which two combs are made, the teeth of both being cut in one revolution of the wheel spoken of. The horn is placed upon a carriage which runs upon ways under the cutter wheel, and by turning a crank the wheel, by a system of levers and cams, is made to revolve the required distance, so as to bring the proper cutter over the horn, when the wheel, by a cam, is forced down, and the cutter pierces through the horn cutting one side of the tooth, when the wheel is forced back by a spring and rotates until the next cutter comes over the place to operate on the horn, when it descends and cuts the other side of the tooth, and so on continually, the horn being moved the requisite distance under the wheel for every new tooth to be cut. The horn is thus cut in the middle, forming two sets of teeth dividing the horn into two pieces with teeth and a back to form separate combs. The invention is quite an original one.

Dr. Jenner, of London, publishes in the Medical Times, the invention of a new, and apparently efficacious, remedy for some of the worst forms of indigestion. He uses the sulphite, (not sulphate) of soda.

[We believe, however, that the medicines "exercise, cleanliness, and pure air," are the best known for promoting good digestion.

IMPROVEMENT IN DESKS.---Fig. 1.



The accompanying engravings represent an improvement in desks, invented by J. H. Norris and David Flanders, of Parishville, in the county of St. Lawrence, N. Y., who have taken measures to secure a patent for the same.

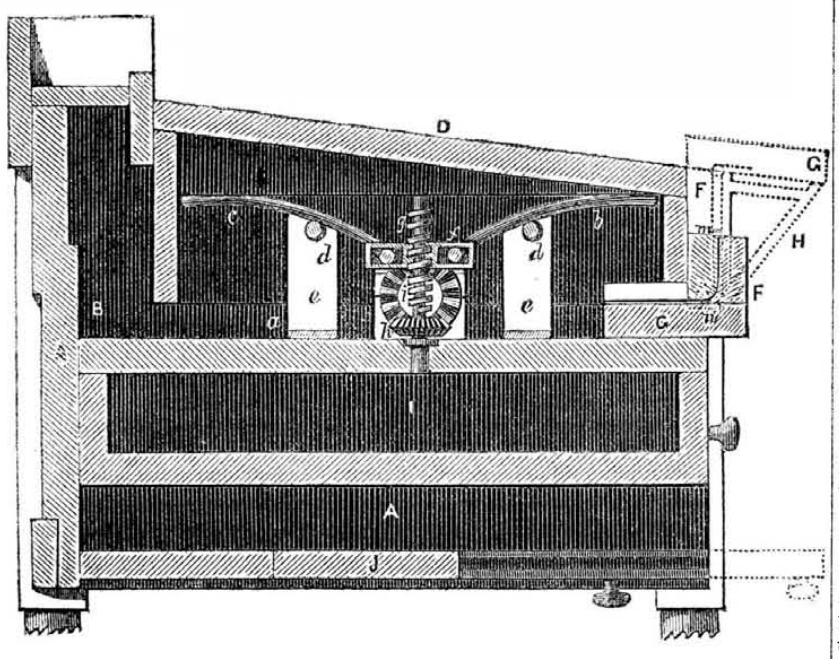
Fig. 1 is a perspective view, and fig. 2 is a transverse section.

The nature of the invention consists in constructing the top of the desk in two parts, each of which, situated side by side, is lowered and raised at pleasure, by appropriate mechanical devices, so that a proper level is obtained for either side of the book; there are also jointed leaves in front of the desk, which, when bent down, admit of the book being brought forward, and when raised up, form a rest for the hand.

A B, figure 1, are top covers of chambers or boxes; C is a double jointed leaf. It can fold up to lie in a recess out of the way, or it can be set at an angle, as it has a double joint, but it is now represented as being pushed up, and it stands out to rest the hand on it: the hinges are shown below its projection with the catch, D, to retain it firmly in its place; E is a drawer, and F is a shelf for ledgers, &c.; it is formed so as to slide out and in.

In figure 2, A is the space for the books on the slide shelf, J; I is the drawer. Only one chamber is represented, and the method of raising one cover; D is a cover; B is a space

Figure 2.



inside. There are four rods formed like an X, *c b* are two of them, the cover, D, rests on said arms, and they support and raise the said cover by bevel pinions and screw gearing. In figure 1, are two horizontal rods, *a b*. These have bevel pinions, one, *i*, on the inside end of each; *h* is another bevel pinion on a small upright rod, with a screw, *g*, on it. The support rods, *c b*, fig. 2, have their inner ends secured in a box, *f*, and they are supported on cross bars, *d d*, the ends only of which are shown, which are confined on small posts, *e e*, so as to make all strong. By turning either of the rods, *a b*, on the outside, fig. 1, the bevel pinion, *i*, will move *h*, and acting upon the screw rod, g, will move the collar box, *f*, so as to raise or lower the arms that support the cover, D, according as the rod is turned. The description of the action of one cover will serve to explain the other, for they are both alike. The parts, G, *n* F, H, G F, *m*, represent the folding leaves in different positions. They are merely two leaves, the inner one being jointed to the front of the desk, consequently they are merely two leaves, the inner one being jointed to the front of the desk, consequently, they can easily be folded so as to go into the space as represented at, G *n*, to receive one leaf. This will easily be understood. These leaves are better than some we have seen used, and are permanent either to support the hand or the book.

More information about rights, &c., may be obtained by letter addressed to the inventor.

New Way of Fastening Scythes.

Mr. W. C. Barker, of Barkersville, Saratoga Co., N. Y., has taken measures to secure a patent for an improved scythe fastening. A flat piece of metal is fitted to a flat surface cut on one side of the snath, and is provided with a collar on one side fitting on the end of the snath, and it has a loop on the other side to receive the shank of the scythe, which is secured therein by a wedge or key; the whole of the scythe, shank, and heel, has a bearing against the flat plate to which the key confines it. This fastening passes all the simplicity of the old fastening, and is more secure, for the scythe by the arrangement will not alter its position, and at the same time when the scythe has to be taken out of the snath for grinding, &c., the wedge or key alone has to be moved; it is the only part ever loosened, consequently this makes the fastening very simple. It is cheap and has no screw about it.

Improved Machinery for Cutting Shoemakers Jiggers, Spur rowels, &c.

Mr. George W. Thurston, of Uxbridge, Worcester Co., Mass., has taken measures to secure a patent for improvements in machinery to cut jiggers for shoemakers, &c. The invention consists in providing a carriage to be placed in the stock of a turning lathe for carrying the jiggers to be operated on, and presenting them to, and withdrawing them from a revolving burr, in a suitable manner, so as to cut the teeth at equal distances apart, there being two rows of teeth, one being opposite to spaces of the other. The improvement is said to be a very excellent one indeed.

Improvements in Expanding Mandrils.

Mr. Walter Sherrod, of Providence, R. I., has invented and taken measures to secure a patent for a valuable improvement on the ex-expanding mandril for lathe turning. He employs an arbor having a taper screw cut upon it, on which is fitted an expanding shell or nut formed of segments whose lengths lie longitudinally with the arbor, and which are held together by coiled springs encircling them.

New Vault Lights.

We have been interested spectators for a few weeks of the erection of one of the largest and most extensive vaults ever constructed in our city, just opposite our office, for the New York Herald.

The vault, like all the rest built in our city, is made by excavating under the sidewalk, building it up, and arching it over, leaving windows of small thick glasss in the pavement.

This vault has some entirely new features about it, for no arching was made for the sidewalk. The pavement is laid on metal girders, and the pavement itself is unique and a novelty. It consists entirely of metal and glass, the surface rough with small round thickly studded glass lights, the invention of Mr. Thaddeus Hyatt, 45 Green st., this city, who has a patent for the same. The pavement is cast in iron blocks fitted to receive the glass lights. These vault lights are the best that have been brought out and are a credit to the inventor. At night when the vault is lighted up the pavement is illuminated with hundreds of flashing lights, glancing up from beneath, like star lights downfrom above.

Cast Iron Fronts of Houses.

The great majority of new brick and freestone buildings for stores which are now being erected in our city, have the fronts of their lower stories made of cast iron.

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Scientific American

NEW-YORK, SEPTEMBER 27, 1851.

Utility of American Inventions.

The fine arts flourish best amidst a luxurious people, where wealth is concentrated in the hands of the few; and in whatsoever country we find this realized, there the hovel is sure to be seen sadly contrasting with the palace; rank and wealth flaunt gaudily on the one side of the road—squalid poverty festers on the other. We speak not disparagingly of the fine arts, for cold and rude must that heart be which cannot drink in delight from the bounding lines of beauty displayed in the chiselled marble, the glowing canvas, or the stately temple; but where ornament is preferred to utility, the representations of life to the objects of life—the marble to the man—we say, "there is surely something wrong." In America the individual man is a sovereign: he feels a self-dignity, and considers himself not a 0, but a 1, in the Republic. This feeling begets energy, self-responsibility, self-reliance, and, consequently, the strong desire of self-benefit; in other words, continual effort in producing something for the greatest benefit to the individual:—these are characteristics of our countrymen, and it cannot be doubted that, in the aggregate, this individual energy and action conduces, in the very highest degree, to promote the prosperity and greatness of the whole country. Objects of utility rather than objects of ornate ability, are the characteristics of American genius; this is by no means exclusive, for we have artists in painting and sculpture who stand in the front ranks; but, as a national characteristic, utility stands out as the leading feature. And this is right: give us the gold rather than the gilding—comfort before mere show.

In the Great Exh bition, the American Department made but a very indifferent display, and it is well known that everything is judged of by the mass of men according to its looks; this is the reason why the greatest actors pay tribute to paint, as well as the poorest of them. But, after all, let people say what they will, the useful takes the pre-eminence. The Greek Slave of Powers, beautiful though it be, and unrivalled as a work of art, has sunk almost into insignificance beside McCormick's clumsy looking "Reaping Machine." The American Yacht has created a greater sensation in Britain than any other thing, in a number of years—but it is not on account of her decorations, for in that respect it is acknowledged she is far inferior to almost every one of those in England: it is on account of her really useful qualities; she has sailed faster before the wind, and closer to the wind, than any yacht in all England. When utility and beauty can go hand in hand, so let them go, and so we should like to see them; but when one has to be sacrificed to the other, let it be the latter. It is also a sign of good common sense to see utility preceding ornament; and here let us say, *common sense*, as a national characteristic embraces everything essential to national freedom and greatness.

We are proud of the utilitarian character of American inventions, and while there are difficulties to be overcome, which can be overcome by machinery for the benefit of our fellow men, so as to lessen labor, and elevate and render more comfortable the individual, we are certain that American genius will not slumber.

Patent Office Report for 1850.---No. 2.

Examiner Page's Report.—At the commencement of the year, Examiner Page had only 9 cases unexamined; during the year, 559 new applications were apportioned to him for examination, all of which were examined but 68, thus making 500 cases acted upon: of these, 314 were made the subject of favorable reports, and for which patents were granted; 175 were rejected, or nearly one-third of the whole. The number of interfering cases were seventeen, of which sixteen were decided. There is one statement made in this report, which will appear strange to many of our readers; it is this, "one thing is certain, an Examiner's work is never finished. If not a single new application was made next year, each Examiner would still have a full year's work to perform. In addition to the cases remaining untouched upon the Examiners' desks, there are 1895 applications still before the Office not yet finally decided, and liable to be called up for action at any time. Upon 1196 of these unfavorable reports and decisions have been made, but they still await the further intentions of the applicants. Upon 673 cases the action of the Office has only been preliminary, the cases for the most part being postponed for the amendment of defects." There were 78 more applications made at this desk in 1850 than the previous year. There are twenty-three classes of invention under the supervision of Prof. Page, and he has that huge class of inventions in charge, viz., stoves and calorific apparatus. The Report notices the lamp of Mr. Stewart, which was illustrated on page 24 of our last volume. Some very excellent and appropriate remarks are made on artificial light. Pure camphene, it is stated, is not to be found, and even spirit gas is frequently so adulterated as to burn little better than alcohol. "A pure sperm oil cannot be purchased; I say this not without authority, and a large quantity of sperm and whale oil is now consumed to manufacture the celebrated Cod Liver Oil, which, as now sold, is about one-third cod-liver and the remainder fish and whale oil. Lard oil is unfit for lamps, at least so far as we have had experience in Washington. I have repeatedly tried that which was most highly recommended, and have never found any suitable for single draft or argand lamps. Seeing all these difficulties, we may reasonably account for the public excitement in relation to artificial light."

We thank Examiner Page for these sharp remarks; they are true—the sale of *pure oils* and *pure* hydro-carbon fluids, at present, is one universal falsehood. It is time there was some reform in respect to this deception. The report notices electric lights as substitutes for the hydro-carbon fluids, but says it has not been available except for special purposes. It has lately been announced that a new light has been invented in France, consisting in rendering a platinum wire cage luminous by a jet of hydrogen. The incandesence of platinum wire or sponge in a jet of hydrogen or spirit lamp, has been known for years." This is quite true, as Prof. Page says: Sir Humphrey Davy discovered this property of platinum more than thirty years ago.

It notices very favorably the invention of Mr. George Mathiot for preventing the electrotype cast from adhering to the plate in electrotypying; it is a valuable discovery. A patent was taken out for making a slight deposit of copper on our common types. This invention has been somewhat extensively applied in New York, and has proven to be a most valuable one. A number of our city papers have the surface of their type coated with copper; it effects a great saving. The Electro Magnetic Enunciator is highly spoken of, and so it should—it is the best enunciator for hotels ever invented, and we understand that it is meeting with a most extensive patronage.

The spirit of this Report is excellent, and the language chaste and to the point. It states that the examining force of the Patent Office is insufficient for the business now before it. Congress must increase the force, for it will not do to let the business fall any further behind.

Remarks on the Manufacture of Starch and British Gum.

America is the greatest agricultural-producing country in the world, and its products are rapidly increasing. In some of our Western States, such as Ohio and Illinois, serious inquiries are now being made about what shall be done with their surplus products of wheat and corn. We have had many inquiries respecting the processes of making starch, especially corn starch—an article which is now somewhat famous, but is made only in one place, we believe, Oswego, N. Y. The process is kept very secret, and when it is known that in all chemical manipulations, so much depends on a knowledge of the eye, taste, and smell, to run off a vat or stop one from fermenting, it is at once apparent that a very small secret may be the means of the greatest success on the one hand, or loss on the other. Practical knowledge is, therefore, demanded of every man to conduct a business successfully; but, at the same time, there are many men in our country who, from a few hints, have commenced experimenting, and have gone forward, step by step, in acquiring a knowledge of various arts, which have resulted in the successful and profitable establishment of various branches of business. In this article we intend to produce some of those practical hints to our people in respect to the starch manufacture, in the hope that the information may result to the personal benefit of many of our readers.

Starch is one of the most widely-diffused natural productions: it is a soft white powder, which feels crispy, like flour of sulphur; it has neither taste nor smell, and is not liable to change from the atmosphere. It may be extracted from many kinds of grain, such as wheat, barley, rye, rice, indian corn, and from potatoes. The quantity of starch obtained from grain is very variable, some kinds of the same grain producing more than others. Wheat is allowed to afford the best quality. To produce the best starch, the best quality of wheat must be used, but that which has been damaged in stores, by water, &c., is often employed. The grain is well washed first, and then crushed between two iron rollers, and put into large clean wooden vessels filled with clear water, to ferment. This process is assisted by exposing the vessels to the heat of the sun, or keeping them in an apartment at 70 degrees of heat; the water should be changed frequently. About twelve or fourteen days are required to finish this process, and a sign that the grain is sufficiently softened and fermented, is, that it will burst easily under the pressure of the finger, and give out a milky liquor. The grain is now removed from the water by means of a sieve and put into a canvas bag, when the husks are separated by rubbing. The bag is then thrown into a tub of clean cold water and beetled or pressed until the water becomes milky with the starch pressed out of the grains through the bag. If any scum should come to the surface of the water it must be removed. The husks will then be found in the bag and must be removed. The milky water is run off through a sieve into a settling vessel, but it generally takes two or three waters to take all the starch out of the grains. A sign of its complete extraction is, when beetled in clean water, no milky appearance is communicated to the liquid. The settling vessel with the starch liquor is then exposed to the sun, when it undergoes acetous fermentation which purifies the starch. When this fermentation is completely produced, the clear liquor is gently poured off, when the starch will be found at the bottom. It then gets two or three clear waters, stirring up the starch at the time, and allowing it to settle again, and then pouring it gently off, until the starch is thoroughly washed. After this it is put in clean white canvas cloths and left to drain upon a rack. The starch is then pressed in the cloths, to take out as much moisture as possible, when it is cut in pieces and laid in a clean, dry, airy apartment to dry. The heat of a stove may be necessary to complete the drying, and in the winter season artificial heat must be substituted for solar heat. After the starch is completely dry it is scraped on the outside to remove dust, and then put up in convenient packages for sale. Wheat yields about 35 and 40 per cent of starch, corn yields a great deal more.

The principles involved in the manufacture of starch embrace four distinct heads:—1st. The washing and fermenting of the grains until they are in a state to part with their starch when pressed in clean water, leaving only the husks behind. 3nd. The fermenting of the starch liquid afterwards, whereby a certain portion of vinegar is produced by the sugar, gum, gluten, and albumen, which is contained in the grain, by which all the gluten is dissolved out of the settled matter, and the starch is thus purified. 3rd. Good washing. 4th. Clean and perfect drying. The process described may be varied and the principles retained; so likewise must the apparatus used be adapted to the amount of work and the location: ingenuity can supply all these.

Potatoes contain a large quantity of starch, and it is easier made than the wheat starch, for the skins and the pulp are much easier separated than the husks of the grains from the starch; the process is nearly the same, but the machinery is different, as the potatoes are grated and not run between rollers. Arrowroot is a starch, so are sago and cassada. Iodine is a fine test for starch, and so is starch for iodine; they form a fine blue color,—the same effect is produced with iodine by no other substance.

British Gum.—This is a substance extensively used in all the calico printworks in Great Britain and in those in the United States. It is used as a substitute for Gum Senegal, and is much cheaper for mixing colors. It is made from Starch, and Manchester, England, is the greatest place for its manufacture in the world. A manufactory was commenced near this city (New York) about three years ago, but it did not do business long; there may, however, be other manufactories in the country, and some color makers may manufacture their own.

It is well known that if starch be gently roasted before the fire, its properties undergo a change: it assumes a pale brown color, and becomes soluble in both hot and cold water (which it does not do as starch) and acquires all the properties of gum. The way in which it is made in Manchester, is to have a range of four cisterns, seven feet deep and four square, and each provided with about 2,000 gallons of water, into which is introduced twenty barrels of flour, and then stirred up; this mixture is made to ferment by yeast, and the atmosphere of the room kept at about 65° Fah. It is left fermenting about three days, when the contents are stirred up and pumped into stone cisterns, when more water is added, and after twenty-four hours the starch will have fallen to the bottom, when the clear water must be run off. The gluten is then scraped from the surface and the starch transferred to wooden boxes pierced with holes. The starch is then cut into blocks, placed on iron trays, and set to dry in a heated apartment for two days. It is then ready to be made into gum, for which purpose it is placed on pans of sheet iron and heated in an oven to the temperature of three hundred degrees Fah. Here it becomes nearly transparent and of a yellow brown color. The lumps are ground into flour and sold in that state for use.

Parker's Wheels.

We have had a number of communications on the subject of Mr. Parker's patent; they all contain the same interrogations, viz., "We want your opinion of the legality of Parker's agents collecting money for the right of running all reaction wheels on a horizontal shaft, with two heads and a cylinder between—the water let in between the heads of the wheel." All we can say is, that Mr. Parker's first patent, which was extended, has expired; but our opinion can avail nothing, but the following advice may be of some value:—When damages are demanded by an agent of a patent, let the person requested to pay, before witnesses, ask for the evidence of the agent's authority, and say—if I am using a patented article it is in ignorance of the fact, and I am willing to pay all legal dues. If the patent cannot be shown, then do not pay; if it is shown, and the person of whom the fees are demanded thinks he does not infringe it, he knows what to do himself—refuse to pay.

Reclaiming Rice Fields.

In our last volume we noticed a valuable improvement made by our friend N. H. Lebby, of Charleston, S. C., in wheel machinery for raising water, and which had been applied for that purpose in a rice field near Charleston; we expressed a hope, at that time, that this machine would be the means of reclaiming some of the rice fields which had formerly been abandoned, and we are happy to know that our hopes are realized. Mr. Lebby writes us that one of his machines "has reclaimed a rice field which had been abandoned many years ago, and there is a prospect now of a fine crop," and another, which was put up but a short time since, on another plantation, has been the means of saving a large quantity of rice.

Interesting Patent Case.---Steam Pump.

U. S. Circuit Court, New York City, Judge Nelson presiding, Sept. 16th, 1851.

Wm. Atkinson, agt. Wm. Boardman, Jr. Bill filed for allowance of patent for improved steam pump, which each claimed. The patent was given to defendant, and appeal made by complainant. The court is of the opinion that the complainant has failed to establish his right to the patent, and that the bill must be dismissed with costs. This is a case which has been litigated more than any other that we know of, in contesting the right to the patent: the complainant, in the present instance, believes himself to be the first inventor.

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☞ Reported expressly for the Scientific American, from the Patent Office Records. Patentees will find it for their interest to have their inventions illustrated in the Scientific American, as it has by far a larger circulation than any other journal of its class in America, and is the only source to which the public are accustomed to refer for the latest improvements. No charge is made except for the execution of the engravings, which belong to the patentee after publication.

LIST OF PATENT CLAIMS

Issued from the United States Patent Office

FOR THE WEEK ENDING SEPTEMBER 16, 1851.

To S. T. Jones, of New York, N. Y., for improvement in the Manufacture of Iron. Patented in England July 23, 1850.

I claim the application of Franklinite to the improvement of iron in the process of reduction from its ores, and in the finery or puddling of crude or pig iron, according to the methods as described.

To Ira Russell, of Dedham, Mass., for improvement in Bedsteads.

I claim the suspension spring, or strip, D, the thrust spring, A, and the Spring E between them, as combined or applied together, and to the bedstead and slats imposed on them, substantially as specified.

To George Winters, of Portsmouth, Pa., for improvement in Railroad Car Coupling.

I claim the shape and construction of the improved car platform, in combination with the jointed self-acting pin, stationary pin, and grooved half coupling, all as described, for the purpose of coupling and disconnecting cars.

To J. T. Ereat & S. Randall, of Toluntown, Conn., for improvement in machines for Breaking Hemp Flax and reducing the length of the fibres.

I claim the art or method of separating the fibres of flax, hemp, &c., from the boon, and reducing them to suitable length of staple, to be used on cotton, woolen, and other machinery, by the use of combined sets of grooved and graduated rollers, or their equivalents, operating in the manner and for the purpose fully set forth.

To George Faber, of Canton, O., for Gauge for Indicating Pressure of Steam, etc.

I claim combining with the steam tube, the disc and spring, so arranged that the force of the current of steam impinging upon said disc can be ascertained by the extent to which the spring is expanded; and thus can be known the comparative pressure in the boiler or other vessel necessary to give the required velocity to the current, to produce different degrees of expansion of the spring, substantially as set forth.

To Smith Gardner, of New York, N. Y., for improvement in Apparatus for Draining Sugar.

I claim combining two or more straining pans with molasses, or receiving vessels, below each, substantially as described, the said pans being provided with a discharge pipe or tube, substantially as described, so that the current of air shall pass from the lower part of the first to the upper part of the next, through the series, and so arranged as to retain the molasses or other liquid parts; and this combination I claim, whether the said succession of pans be used in one or more series, as described.

To Henry Goulding, of Boston, Mass., for improvement in Stone Drilling Machines.

I claim, first, a power drilling machine, in which the drill is driven by a vibrating hammer, operated substantially as described.

Second, I claim stopping the "feeding forward" of the sliding frame and drill, when the latter does not penetrate the rock sufficiently, or to the usual depth, at each blow, by keeping the pawl out of the feeding ratchet, excepting when the drill goes in the requisite length, by means of the combination of the forked vertical lever connected with the drill shaft, the horizontal lever, and the spiral spring, operating substantially as set forth.

I also claim drawing the edge of the drill away from the bottom of the hole, when the tool is being turned by means of the inclined claw or fork operating with a collar on said drill, substantially as described.

To E. W. Hazard, of Binghampton, N. Y., and C. H. Jenner, of Rochester, N. Y., for improvement in Machines for Dressing Mill Stones.

We claim, in combination with the feed lever operated by the cam to work the feed bands, the employment of a weighted stop lever or the equivalent thereof, acting in the notch of the feed lever, substantially as described, which said stop shall be self-acting, to stop the feed motion, that the cuts may continue in the same place, until the feed motion is restored, and thus insure the cutting of the stone to the required depth, whatever may be the nature thereof, as described.

To Leopold Brandies, of New York, N. Y., for improvement in the process of making Brown Powder.

I claim making metallic brown powder of copper, tin, spelter, or their alloys, by running them through iron or steel rollers, substantially as described.

Also the application and manner of application of soap to make the bronze bright, brilliant, and durable.

To Gardner Chilson, of Boston, Mass., for improvement in Stoves.

I claim forming the tapering radiator, produced by extending the fire chamber, as set forth in branches arranged with their centre lines parallel to each other, or nearly so, and connected by arches, substantially in the manner set forth.

To N. F. Cone, of Kingsville, Ohio, for improved Bench Vise.

I claim the combination of the latch pin, the ratch bar acted upon by a spring that constantly tends to disengage it from the latch pin and the foot lever, with the movable jaw of a vise; these several parts being constructed, arranged, and operating as set forth.

To Arnold Jillson, of Woonsocket, R. I., for improvement in Weavers' Temples.

I claim connecting the movable jaw to its point of suspension by an arm, or its equivalent, in such a manner that the point of suspension will be nearer the middle of the cloth, than its other extremity, which extends out towards or beyond the selvedge, at such an angle that the jaws of the temple will be released by the cloth, as it is spread by the action of the reed upon the warp, when it strikes up a thread of weft, and closed by the contraction of the cloth, caused by its own elasticity, as the reed leaves it, so that the cloth, by its own action, is released, when the reed advances and is griped and held as it recedes, thereby dispensing with the strong spring wedge and other devices heretofore used for operating the jaws of temples.

To Alpha Richardson, of North Enfield, N. H., for improvement in Leather Splitting Machinery

I claim, first, making the gauge roller of a leather splitting machine, with the sectional tubes or friction rollers to be placed on each end thereof, substantially as set forth and for the purpose specified.

Second, I claim combining with the ordinary of cast iron spring plate of a leather splitting machine, a cast steel spring plate, forming a double lip spring plate, and fitted thereon so as to be adjustable horizontally, as set forth, and so that the front edge of the lower or cast-iron plate may project under the edge of the knife, and hold up the split, as set forth.

To Levi R. Rockwood, of Upton, Mass., (assignor to Joseph L. Woodward) for improvement in Fastenings for Last Blocks.

I claim fastening the block to a boot or shoe last, by a hasp on said block, in combination with a spring attached ta the last, as described, or in any other manner substantially the same.

To C. G. Sargent & R. Thompson, of Lowell, Mass., for improvement in Waste Pickers.

We claim the use of a blast of steam or air passing into and out of the hollow shell, as specified, so as to blow the ends or fibres of the material out, in order to enable the teeth of the picking cylinder to engage with them.

To M. D. Whipple, (assignor to the Essex Company) of Lowell, Mass., for improvement in machines for Printing House Paper.

I claim the use of two sets of spur clamps, one set being sliding and feeding clamps, and the other set being stationary and holding clamps, and the two sets having a connected operation, so that one set shall be open when the other set is closed, all as set forth.

I also claim the mode described for supplying the coloring fluid to the patterns; that is by means of a cloth band, alternately drawn forward from the vat over an elastic bed, on which the platen descends, and then back again through the color in the said vat, all as set forth.

I also claim giving the second or double application of the color to the patterns, for each impression, by suddenly lowering the elastic bed, after the first touch of the patterns on the cloth band, and then raising it again for the second touch, substantially in the manner set forth.

DESIGN.

To Ebenezeer Weeman, of Charlestown, Mass., for Design for Metallic Gates.

To E. P. Penniman, of Rochester, N. Y. (assignor to Henry Ruttan, of Coburg, Canada,) for Design for a Ventilating Stove or Furnace.

(For the Scientific American.)

Tilton's Violin.

It was announced among the list of patent claims in the last number of Vol. 6, that letters patent had been granted to Mr. Wm. B. Tilton, of Cannelton, Ala., for an improvement in the construction of violins, etc. We find in the West Alabamian, a paper published at Cannelton, Pickens Co., Ala., in its issue of the 7th of May last, the following notice of this new invention:—

"For more than two hundred years the violin has remained unchanged. Improvements have been made in almost every other instrument, but the violin of to-day is the same in form, size, and make with the Cremonas of 1660. In the seventeenth century the three Amatis were the most celebrated makers of the violin. Straduarius, and Guarnarius succeeded these, and great as has been their success they have singularly lost sight of one of the first principles of the correct violin.

Sir Richard Philips, the collator of "a Million of Facts," says:—

'The violin is the form of instrument which all men would adopt when seeking to produce vibrations,' perfect uniformity, and an absence of any substance tending to impede the vibrations, are essential requisites to the production of a full, clear, mellow, round tone.

Our fellow townsman, Mr. William B. Tilton, in experimenting upon an old violin, was struck with the idea of improving the sound both in tone and volume, by removing the cause, which, in his opinion, impeded the vibration; he made the attempt and succeeded. Determining to test his improvement by the severest scrutiny, he took several of his improved violins to New Orleans, placed them under inspection, of the most eminent musicians in the city, explained the nature of his improvement and received the highest assurance of the value of his invention.

To satisfy our own mind we left with Mr. Tillton an excellent instrument, with full authority to use it as his own in testing the improvement. The violin is well known in this place, and all who have heard its sound declare that it has been benefited at least twenty per cent."

What has been done to produce results thus vouched for we learn from the claim as given in our last. Mr. Tilton alledges that by introducing his "supporter" between the two end blocks, he is enabled, first, to disconnect the sound board from those blocks; second, to better qualify the instrument to receive the strain of the strings, third, to relieve the sound board entirely from said strain; and, lastly, to cut away at, discretion, those thick portions of both tables, of the in strument, which are now no longer needed to strengthen it, as on the old plan, all of which, combined, greatly increase the vibrations of the instrument, and in such a manner as to improve its tones in sweetness, softness, clearness, fullness, and power.

The commonly received theory, and no doubt the correct one, has been, that the violin must have age—time to season—and that the various experiments and the artificial modes of preparation, such as baking or boiling of woods, which have been resorted to, cannot supersede the slow process of time. Constant use of an instrument will hasten to perfect it; hence, it is said, many little boys are kept, in the German manufactories, constantly employed in drawing the bow over the strings of new-made fiddles to "bring them out"—somewhat analogous to our modern mode of bringing out young misses before their time. In an interview with Mr. Tilton, we stated what seemed to us difficulties he will have to contend with when he comes in contact with a man who owns a "Cremona" or a "Steiner!" Such a man is apt to think, first, that there is no such fiddle as his own; second that no new or modern violin can be as good as those made in the early part of the seventeenth century—more than seven-eighths of which, by the way, are merely good, very good imitations, with false labels inside!!

The gist of this invention is, that it will improve all violins in the volume and quality of tone, by removing obstructions to the full and free vibrations of the instrument of the ordinary construction. The improved violin also grows better and better, according to the laws which have been found to govern this instrument. The fair conclusion, then, is, that had either of the Amati made and applied the same discovery, their violins would now be much better than they are, for, in their old and excellent fiddles, those two blocks still remain, having their large contacts with the top and bottom tables of the instrument still impeding its full and free vibrations, and injuring very much the tone, superior as those old violins and their counterfeits often are.

Mr. Tilton is now in New York city with a view to bring his invention before the public, and we desire him to have all that success which his improvement is worthy of. We see no reason why the old violin should not be susceptible of improvement like other musical instruments. Mr. Tilton claims to have produced a good violin without waiting two hundred years for it to be seasoned. N. S.

Haviland & Tuttle's Centre Vent Iron Wheels.

The Pawtucket Gazette, R. I., has the following remarks about these wheels:—

"Several of Haviland & Tuttle's iron water wheels have recently been put into mills in this place and vicinity by Mr. W. R. Tuttle, one of the proprietors, and in every instance they have done all that they were represented capable of doing, and given the most perfect satisfaction. Several iron water wheels have been tried here before and failed, and our manufacturers had consequently become prejudiced against all kinds of wheels made of that material; but the success of the wheels of Haviland & Tuttle must remove this prejudice so far as they are concerned, if they have not done so already. One of these wheels was put into the mill of Moies & Jenks, at Central Falls, in the place of a good breast wheel, and the far greater power which they obtained from the former than the latter, gave rise to a suspicion or belief that they were using a greater quantity of water. To settle this point, the scientific services of Mr. Franklin Forbes, of Clinton, Mass., (as skillful an engineer probably as there is in the country,) were procured, and the result of his examination shows that less water is used. The data and his figuring were submitted to Mr. Cushing, of Providence, and the engineer of Gen. James, and the result arrived at by Mr. F. was by them pronounced correct: Mr. Forbes says:

'From the amount of work which the wheel was driving at the time when I was at the mill, I hesitate not to say that I should be perfectly satisfied with such a result from such a head and quantity of water; for unless I have made gross errors, and have entirely misunderstood the character and condition of the machinery, your wheel is doing a very great work.'

The wheel here referred to is 4 feet in diameter, 12 1-2 inch bucket, 14 apertures of 11 1-16 inches each, and the head of water is 8 feet 8 inches. It is a 'direct actor,' and in this respect differs from any other iron wheel in use.

Another of these wheels of the same dimensions as the one referred to above, is in operation in Jenk's grist mill in this place. It grinds corn with one pair of stones, into merchantable meal, at the rate of 45 bushels an hour, with one half of the apertures stopped. The head of water here is 14 feet."

[Now if the centrifugal force theory was correct, the above wheels would not work at all, for they take their water at the periphery and discharge it at the centre, in the contrary direction of the *tremendous force*, spoken of by the "New Motive Power Ignoramuses."

More Gold.

Placers of gold have been discovered in Australia, and a ship has gone off to Sidney from San Francisco. It is to be hoped that the old convicts will thus be allured back. Gold is becoming quite plenty.

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TO CORRESPONDENTS.

C. M. S., of Mass.—The plan you submit of a screw driver appears to be new and patentable: whether it will be profitable or not we cannot decide: you will perceive that it would require prophetic vision to see through this point.

J. A. S., of N.H.—Bourne's Catechism of the Steam Engine will aid you considerably: price $1,25.

W. B. S., of Ohio.—We should think your Carding Machine new and patentable, the description, however, is too indefinite.

J. S., of Pa.—We are much obliged to you for the representation of the Corn Sheller, as we like to obtain all such information. There is a machine for engraving lines, but plenty of engravers do all with the graver: our cuts are done with the graver by hand. Lithography is the cheapest way to re-produce copies of drawings. The crayons for drawing on stone can be purchased in this city.

A. D. S., of Chio.—Your remarks on ink are very judicious and correct. We have had great experience in judging of the gal nuts and such chemicals, and perceive that you are thoroughly acquainted with the subject: we will use the matter, some of which is new to us, as directed, at some other time.

A. D, of Mass.—You may expect the information about the British Gum in some early number.

A. C. W., of R. I.—There is no more power in a long than a short screw-driver: the difference in screw drivers consists in the length best adapted to apply the power of the operator. A person could not work a very long one, and he could not apply his power well to a very short one.

T. J. K., of Va.—The re-bound of the marble scarcely proves its elasticity, for this quality means that the fibres or particles can be extended and contracted, which is not so with the marble: the re-bound is just of the same nature as the force which gives it the first motion, only in a contrary direction. There is very little, if any, real solid matter, but we understand what the term is used for. The philosophy of the wheel, we suppose, is pretty well understood. Gravity and resistance are the causes which obstruct the motion of the under side to the greatest degree.

C. H., of S. C.—To make common black asphalt varnish, use 4 oz. asphaltum, 2 oz. pitch, and 2 oz. wax, all melted together; if you want it soft, add some suet. You are no doubt correct about the chain not working at great depths. The old [illegible] only one that is and can be used in deep mines: it is a pity that there is not a better.

T. Van T., of N. Y.—Your instrument for the bench appears to be a very good one, indeed, but we are afraid that you would meet with the old objection if you applied for a patent.

M. W. S., of Mass.—Did you ever try an experiment with a hollow sphere vessel for a boat? Surely not: and you surely have not given the subject a proper attention—it never will nor can answer.

W. L. H., of N. Y.—We think but three numbers of Chapman's Drawing Book have ever been published.

B. M. H., of Ind.—If the invention you speak of should succeed, no one could get a patent for it but yourself, and it must be applied for in your own name, and your obligation must accompany it.

E. A. D., of N. Y.—The use of gutta percha for shoe lasts would be very good on account of its susceptibility of being formed into any shape to fit peculiar feet, but the suggestion has been made to us before. We believe the application of gutta percha to that purpose could not be patented by any one.

J. E., of Ohio.—The acknowledgment of $30 was an error, you sent $25. $8 received for the club: much obliged.

M. B. F., of N. Y.—We do not know of any such work as you want.

J. C. P., of La.—We are undecided yet what we shall do about publishing the book.

"Everard."—There is scarcely a week passes but that we have similar application, to aid inventors in bringing out their inventions. We cannot, in justice to our pressing business, afford time nor money in furtherance of your objects. It would make no difference what the character of your invention is, our purposes cannot be changed. We are often solicited to manage patented inventions on favorable terms, but we never engage in them on any consideration whatever. It is no part of our business. You have our best wishes for your success.

R. O. G., of Md.—Jacob Perkins, now deceased, invented a wheel the paddles of which were placed on the extremity of a radiating arm, in such position that its plane, if produced towards the centre of motion, would make, with the axis of the paddle wheel, an angle of forty-five degrees.

D. Z., of Va.—The galvanic investigations of Sir H. Davy tend to establish an opinion that all substances which have a chemical action on each other, are in opposite electrical states, and that this difference of states is the cause of such chemical action: evidence is wanting to confirm this beautiful hypothesis.

A. J., of Pa.—It is not necessary to mention the name of the counsel referred to: we believe his ability over-estimated, vastly so, and like frail humanity, he will have his day. This system of bullying and browbeating opponents in courts of justice is beneath the dignity of a well-bred lawyer, and they seldom resort to it.

A. O. P., of Miss.—You should remember that the Examiners in the Patent Office are nothing but men, and hence are liable to err. We know nothing of the merits of the case, but presume a mistake has been made in the decision: you had better get the Member of Congress from your district to look into it. He could do it while in Washington much more economically than any one else, being on the ground.

J, K., of O.—The Alcott Lathe would not answer your purpose for turning spokes.

G. B. W., of Ill.—The work which you inquire relative to, comes at $3 per annum, and is published monthly.

J. L. J. & Co., of N. O.—Merry's Museum is published by S. T. Allen & Co., 116 Nassau street, this city.

G. F. H., of Me.—We would like to have you send on a model of your improvement. The rack and pinion could not be claimed except in combination with some other devices. The claims would be made according to our judgment, and we should be more likely to hit the mark than yourself. Our fees vary in proportion to the amount of service rendered,—say from $20 to $150. You should not be over sanguine—there are plenty of inventions in the world.

O. P. S., of Ohio.—Yours of the 16th is received: there is nothing new in your arrangement. See "Traite De Industriel," Vol. 16, page 381.

J. S. T., of Ill.—Your subscription will expire with No. 52. The Almanac we could not find.

D. E. W., of N. Y.—Yours of the 15th inst. is received. When the patent is issued you can send the letters to us and have engravings made. $20 received and forwarded to the P. O.

G. L. H., of Ct.—Mr. Porter's address is Harper's Ferry, Va. We mailed your letter to him as requested.

A. T., of Tenn.—Mr. Ranlett is now in California, and it is uncertain when his work on Street Architecture will be published. We should think the machine in queston, would answer your purpose well for mortising blinds.

Money received on account Patent Office business for the week ending September 20th.

C. B., of N. Y., $30; S. M. P., of Pa., $40; A. L., of N J., $10; H. M., of Pa., $30; E. S., of Mass., $20.

Specifications and drawings belonging to parties with the following initials have been forwarded to the patent office during the week ending September 20th.

J. S., of London, Eng.; M. S. B., of Ct.: A. L., of N. J.; W. L., of N. Y.; F. C. G., of N. Y., and W. H. B., of Mass.

Back Numbers and Volumes.

In reply to many interrogatories as to what back numbers and volumes of the Scientific American can be furnished, we make the following statement:

Of Volumes 1, 2 and 3—none.

Of Volume 4, about 20 Nos.; price 50 cts.

Of Volume 5, all, price, in sheets, $2; bound, $2,75.

Of Volume 6, all: price in sheets, $2; bound, $2,75.

New Edition of the Patent Laws.

We have just received another edition of the American Patent Laws, which was delayed until after the adjournment of the last Congress, on account of an expected modification in them. The pamphlet contains not only the laws but all information touching the rules and regulation of the Patent Office. We shall continue to furnish them for 12 1-2 cts. per copy.

Patent Claims.

Persons desiring the claims of any invention which has been patented within fourteen years, can obtain a copy by addressing a letter to this office;—stating the name of the patentee, and enclosing one dollar as fee for copying.

Postage on Books.

Subscribers ordering books or pamphlets through us are particularly requested to remit sufficient to pay postage, or we cannot attend to their orders. We are obliged to pay from 10 to 50 cents every time a pamphlet or book is sent by us through the post, and the justice of our demand is made apparent.

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American and Foreign Patent Agency

IMPORTANT TO INVENTORS.—The undersigned having for several years been extensively engaged in procuring Letters Patent for new mechanical and chemical inventions, offer their services to inventors upon the most reasonable terms. All business entrusted to their charge is strictly confidential. Private consultations are held with inventors at their office from 9 A. M., until 4 P. M. Inventors, however, need not incur the expense of attending in person, as the preliminaries can all be arranged by letter. Models can be sent with safety by express or any other convenient medium. They should not be over 1 foot square in size, if possible.

Having Agents located in the chief cities of Europe, our facilities for obtaining Foreign Patents are unequalled. This branch of our business receives the especial attention of one of the members of the firm, who is prepared to advise with inventors and manufacturers at all times, relating to Foreign Patents. In the item of charges alone, parties having business to transact abroad, will find it for their interest to consult with us, in preference to any other concern.

MUNN & CO., Scientific American Office,
128 Fulton street, New York.

ALCOTT'S LATHES.—I would say, in regard to the Alcott Lathe I purchased of you about a year ago, that it will perform all that it is represented to, and could I not get another I would not take $50 for it, so that you need not be afraid to recommend them. F. R. BARTLETT.
Galesburg, Ill. 2tf

Foreign Patent Office.

MESSRS. MUNN & CO. transact business connected with Patents in all European countries, where this species of property is recognized. They take pleasure in referring parties to Smith Dunning, Jr., N. Y.; Ebenezer Barrows, N. Y.; Charles Starr, Bible House; William Van Anden, Poughkeepsie; Mortimer & Gardiner, Charleston, S. C.; William Bushnell. N. Y.; J. S. Prouty, Geneva, N. Y.; Gail Borden, Jr., Galveston, Texas, and to all others for whom they have done business.

KELLY & CO., New Brunswick, N. J., Foundry and Machine shop, manufacturers of stationary Engines, India Rubber Machinery, Mill Gearing, and stove castings &c. Articles made in the machinery line to order with dispatch and in the most workmanlike manner. Parties wanting machinery or castings made will be waited on within any reasonable distance. Orders solicited. 47 12*

MARSHAL, BEMENT, & COLBY—Manufacturers of Machinists' Tools, Callowhill street, west of Schuylkill 3d, Philadelphia, are ready to execute orders for Slide and Hand Lathes, Planing Machines, Upright Drills, Upright Boring Machines, Screw Cutting and Tapping Machines with Gates' Patent Dies and Taps, Gear Cutting Engines, Shaft-Pulleys, Hangers, &c. Orders for Machinery, Iron and Brass Castings and Patterns, promptly executed. E. D. Marshall, Wm. B. Bement, G. A. Colby. 1 4*

TO ENGINEERS.—A new Work on the Marine Boilers of the United States, prepared from authentic Drawings and Illustrated by 70 Engravings—among which are those of the fastest and best steamers in the country—has just been published by B. H. BARTOL, Engineer, and is for sale at the store of D. APPLETON & CO.,
1 12* 200 Broadway.

TO MILLERS.—My attention has lately been attracted by an extensive hand-bill, circulated in the West and South by a Mr. James M. Clark, or some one interested in vending a certain Patent Mill of his invention. In said handbill strong inducements and flattering encouragements are held out to induce the milling community to purchase said Mill for the purpose of re-grinding the entire offal by a continuous operation; and through the medium of your paper I wish to caution the public, that, by adopting the plan suggested by Mr. Clark, they will surely infringe "Bonnell's Process," which was patented Aug. 14, 1849, and they will be held accountable. Persons wishing rights of "Bonnell's Process," can have them on low terms by applying to the patentee, at Tecumseh, Mich. D. P. BONNELL. 51 3*

A LARGE LATHE FOR SALE CHEAP.—A new Lathe, 16 feet long, swings 31 inches, turns 12 1-2 feet; has 25 changes of screw gear, weighs about 5,000 lbs., has counter shaft, &c. Price $550, cash. Apply to S. C. HILLS, 12 Platt street, where the lathe can be seen. 51 4*

HUTCHINS' CRANK INDICATOR.—The subscriber having purchased the entire right of Hutchins' Patent Crank Indicator, would respectfully inform the public that he is ready to supply orders or sell territory. The Indicator has been used aboard the "Northerner," "Bay State," "Cataract," "Niagara," "Ontario," and "Lady of the Lake," the Captains and Engineers of which have all given their testimonials of approbation. Address G. S. WORMER, Steamboat Office, Oswego, N. Y. 51 6*

WANTED.—A situation is wanted by a person capable of planing and constructing furnaces for smelting iron ore, or erecting rolling mills. He is an experienced mechanic, thoroughly conversant with the iron business, and would like a permanent situation in some of the Southern States. Address M. E., Dover, N. J. 45 10*

MACHINISTS TOOLS FOR SALE.—The Maryland Machine Manufacturing Co., having suspended operations, offer all their Machinery and Tools for sale. The assortment is large, has been in use but a short time, and is of the most improved kinds. For particulars apply to the undersigned.
GEORGE POE, Agt.,
Ellicott Mills P. O.
1 4t* Maryland.

WE HAVE FOR SALE, a bound set of the London Patent Journal; consisting of the first 10 volumes. It is a valuable work for the Inventor, Mechanic, or manufacturer. The last Volume comes up to near March 29, 1851. Price $30.
MUNN & CO.

RAILROAD CAR MANUFACTORY—TRACY & FALES, Grove Works, Hartford, Conn. Passage, Freight and all other descriptions of railroad Cars, as well as Locomotive Tenders, made to order promptly. The above is the largest Car Factory in the Union. In quality of material and in workmanship, beauty, and good taste, as well as strength and durability, we are determined our work shall not be unsurpassed. JOHN R. TRACY,
39tf. THOMAS J. FALES.

BEST CAST STEEL—(A new article.)—Axles and Tyres for Railroad Carriages and Locomotives. The quality of this steel is sufficiently attested in the announcement that it has carried off the first prizes awarded at the World's competition of 1851, in London. The axles are in general use on the Continent, and are now offered in competition with any other that can be produced; and to be tested in any way that may be desired by the engineers of the United States, either by impact or by torsion. This steel is manufactured by Fried Thropp, Esq., of Essen, of Rhenish Prussia, represented in the United States by THOS. Prosser & SON, 28 Platt st., N. Y.
2tf.

MACHINISTS' TOOLS.—Just received and for sale at Leonard's Machinery Depot, 109 Pearl and 60 Beaver st.—

1	very heavy	16	feet	Engine	Lathe, 28	inches swing
1	"	14	"	"	26	"
2	"	12	"	"	26	"
2	"	10	"	"	22	"
1	"	9	"	"	24	"
1	"	7	"	"	17	"

The above Lathes are all screw feed, with gearing for cutting screws and are well made. Also 12 superior Foot and Hand Lathes; 2 ten feet Iron Planers; 1 six feet ditto, and 3 three feet ditto; and 1 Gear Cutting Engine; Universal Chucks, &c.
1* P. A. LEONARD.

SHINGLE MACHINES—Manufactured to order at Albany, N. Y., at short notice: these machines are superior to any now in use: they are in use in several different States. All who wish for a good machine will do well to call or send their orders by mail, which will be promptly attended to.
2 2* A. KNOWLES.

SCRANTON & PARSHLEY, Tool Builders, New Haven, Conn., have on hand six 12 ft. slide lathes, 28 in. swing; also four 8 ft. do.; 21 in. swing, with back and screw gearing, with all the fixtures; one 5 ft. power planer; 12 drill presses, 4 bolt cutting machines, 30 small slide rests; 5 back geared hand lathes, 21 in. swing; 15 do. not geared; 8 do. 17 in. swing on shears 5 1-2 feet; 25 ditto with and without shears, 13 in. swing; counter shafts, all hung if wanted suitable to the lathes. Scroll chucks on hand; also index plates for gear cutting. Cuts of the above can be had by addressing as above, post-paid. 47tf

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BEARDSLEE'S PATENT PLANING MACHINE, for Planing, Tonguing and Grooving Boards and Plank.—This recently patented machine is now in successful operation at the Machine shop and Foundry of Messrs. F. & T. Townsend, Albany N. Y.; where it can be seen. It produces work superior to any mode of planing before known. The number of plank or boards fed into it is the only limit to the amount it will plane. For rights to this machine apply to the patentee at the abovenamed foundry—or at his residence No. 764 Broadway; Albany. GEO. W. BEARDSLEE. 43tf

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TO PAINTERS AND OTHERS.—American Anatomic Drier, Electro Chemical graining colors, Electro Negative gold size, and Chemical Oil stove Polish. The Drier improves in quality by age—is adapted to all kinds of paints and also to Printers' inks and colors. The above articles are compounded upon known chemical laws and are submitted to the public without further comment.—Manufactured and sold wholesale and retail at 114 John st. N. Y. and Flushing L. I. N. Y.; by
QUARTERMAN & SON
48tf Painters and Chemists.

MACHINERY.—S. C. HILLS, No. 12 Platt-st. N. Y. dealer in Steam Engines, Boilers, Iron Planers, Lathes, Universal Chucks, Drills; Kase's, Von Schmidt's and other Pumps; Johnson's Shingle Machines; Woodworth's, Daniel's and Law's Planing machines; Dick's Presses, Punches and Shears; Morticing and Tennoning machines; Belting; machinery Beal's patent Cob and Corn mills; Burr mill and Grindstones; Lead and Iron Pipe &c. Letters to be noticed must be post-paid. 38tf

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LAP-WELDED WROUGHT IRON TUBES for Tubular Boilers—from 1 1-4 to 7 inches in diameter. The only Tubes of the same quality and manufacture as those so extensively used in England Scotland, France and Germany—for Locomotive Marine and other steam Engine Boilers.
THOS. PROSSER & SON, Patentees,
1tf 28 Platt-st. N. Y.

LATHES FOR BROOM HANDLES, Etc.—We continue to sell Alcott's Concentric Lathe, which is adapted to turning Windsor Chair Legs, Pillars, Rods and Rounds; Hoe Handles, Fork Handles and Broom Handles.

This Lathe is capable of turning under two inches diameter with only the trouble of changing the dies and pattern to the size required. It will turn smooth over swells or depressions of 3-4 to the inch and work as smoothly as on a straight line—and does excellent work. Sold without frames for the low price of $25—boxed and shipped with directions for setting up. Address (post.paid) MUNN & CO.
At this Office.

MONTGOMERY MANUFACTURING CO.'S Iron Works, Montgomery Ala. Capital invested $250,000. Steam Engines and Boilers; Reuben Rich's cast-iron centre vent water wheel and iron scrolls complete (the very best wheel in use) sugar mills, saw and grist mill irons of most approved patterns; iron and brass castings of every variety, &c. Orders promptly executed and upon terms as favorable as can be secured from the best northern establishments. When required, deliveries made (through their agents) at Mobile or New Orleans. Address GINDRAT & CO., Agents. 42 3m*

A CARD.—The undersigned begs leave to draw the attention of architects, engineers, machinists, opticians, watchmakers, jewellers and manufactures of all kinds of instruments, to his new and extensive assortment of fine English (Stubs) and Swiss Files and Tools; also his imported and own manufactured Mathematical Drawing Instruments of Swiss and English style—which he offers at very reasonable prices. Orders for any kind of instruments will be promptly executed by F. A. SIBENMANN Importer of Watchmakers' and Jewellers' Files and Tools and manufacturer of Mathematical Instruments 154 Fulton st. 42 3m*

IRON FOUNDERS MATERIALS—viz.: fine ground and Bolted Sea Coal; Charcoal, Lehigh, Soapstone and Black Lead Facing. Iron and brass moulding sand; Fire Clay, Fire sand and Kaolin;—also English, Scotch and Welsh Fire Bricks—plain arch, circular and tower cupola—for sale by G. O. ROBERTSON Liberty place, between 57 and 59 Liberty-st. (near the Post Office) N. Y. 44 12*

WOOD'S IMPROVED SHINGLE MACHINE—Patented January 8th 1850, is without doubt the most valuable improvement ever made in this branch of labor-saving machinery. It has been thoroughly tested upon all kinds of timber and so great was the favor with which this machine was held at the last Fair of the American Institute that an unbought premium was awarded to it in preference to any other on exhibition. Persons wishing for rights can address (post-paid) JAMES D. JOHNSON, Easton Conn.; or WM. WOOD, Westport; Ct. All letters will be promptly attended to. 37tf

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LEONARD'S MACHINERY DEPOT, 109 Pearl-st. 60 Beaver N. Y.—The subscriber is constantly receiving and offers for sale a great variety of articles connected with the mechanical and manufacturing interest, viz.: Machinists' Tools—engines and hand lathes; iron planing and vertical drilling machines; cutting engines, slotting machines; bolt cutters; slide rests; universal chucks &c. Carpenters' Tools—mortising and tennoning machines; wood planing machines &c. Steam Engines and Boilers from 5 to 100 horse power. Mill Gearing—wrought iron shafting; brass and iron castings made to order. Cotton and Woolen machinery furnished from the best makers. Cotton Gins; hand and power presses. Leather Banding of all widths made in a superior manner; manufacturers' Findings of every description. P. A. LEONARD. 48tf

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MANUFACTURE OF PATENT WIRE Ropes and Cables—for inclined planes, suspension bridges, standing rigging, mines cranes, derick, tillers &c.; by JOHN A. ROEBLING; Civil Engineer—Trenton N. J. 47 1y*

AARON KILBORN, No. 4 Howard st. New Haven—has on hand and is now finishing five 14 horse power engines; price including boiler and all fixtures $1200; twelve of from 12 to 6 horse power—all of the most approved patterns—iron bed frame and pulley balance wheel. Galvanized Chain and fixtures for chain pumps always on hand and for sale. 45 10*

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SCIENTIFIC MUSEUM.

Submarine Explosion.

On last Thursday at 2 1-2, P. M., we witnessed two splendid submarine explosions on the Diamond Reef, opposite the apex of Manhatten Island near Governor's Island.

The depth of water at the buoy at flood tide is about twelve feet, and it was at this depth that the charges were sunk. The operation is simple; a large cannister of powder is lowered to the rock, and if practicable sunk into a crevice; from this cannister a wire leads into a boat and is wound upon a reel; when the cannister is fixed in the place designated, the boat backs off about 200 yards, paying out the wire (which is insulated by gutta percha,) and when a safe distance is between the boat and the powder, the conductor of a small galvanic battery is connected with the insulated wire and the powder is thereby fired. The explosions were very successful. At the appointed hour a whole fleet of small boats had gathered at the buoy, watching the operation of sinking the charge. At the signal they moved off, the white flag was waved, and a heavy, dull shock was felt, a column of water about ten feet in diameter at the base was forced about 60 feet into the air. The boats rowed up, and an exciting contest was had for possession of some fish which had been killed by the shock and were floating keel upward on the water. In ten minutes afterward a second charge was fired, which seemed to be more powerful than the first.

The engineer is a French gentleman named Mons. Maillefert, who has been successfully operating for sometime on the rocks at Hurlgate. The blast without drilling is only for concrete shoals, and is not applicable to solid rocks. The water serves as a lever to the blast, and acts with great living force upon the reef. The same plan was tried on the Thames, a few years ago, and illustrations of it were presented in the "Illustrated London News."

The Rotary Experiment.

While we were witnessing the blasting of the Diamond Reef, our attention was arrested, as was that of the assembled multitude, by a little steamboat, on the paddle-box of which were inscribed the characters "Rotary Experiment." This boat was propelled by a new Rotary Engine, the invention of Ebenezer Barrows, Esq., corner of Water and Beekman sts., and for which patents have recently been taken out in England, France, Belgium, and other European countries. The boat was clumsily formed for the "experiment," yet it did well, considering its size. The boat was 35 feet long, with 6 feet beam, 2 feet 4 inches from keel to top of gunwale, and the paddle-wheels were 4½ feet diameter. The engine only occupied a space of 15 inches by 9 inches, and 18 inches from the bottom of the bedplate to the top of the engine: diameter of steam chamber 12 inches, 5 inches wide by 7-8th of an inch deep; amount of steam discharged every revolution, after deducting out the thickness of the pistons, 251 square inches. As the steam enters the chamber at diametrically opposite points, thereby acting on two sets of pistons, being 5 inches by 7-8th, the faces of both being added together give 8 3-9 square inches. Suppose the steam to be 75 lbs. to the square inch, it would give a compressure of 651¼ lbs. on a leverage of 5 7-8 inches. The friction of the engine has been proven to be not over one pound to the square inch.

We have seen many rotary steam engines, but this one appears to be the most ingenious and best arranged in respect to packing and the wear of the pistons, that we ever saw.

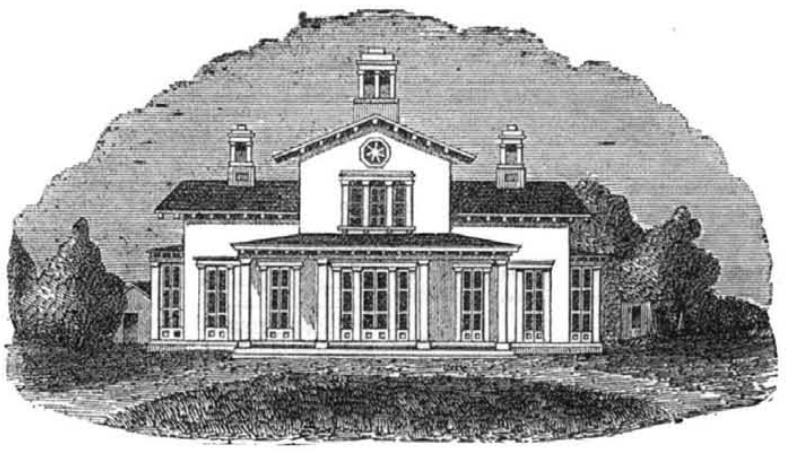
For the Scientific American.

Petrifactions in Arkansas.

In the Scientific American I recently noticed the description of a petrified tree found on the "Yellow Stone," Mo. I have never seen a notice of our curiosities of a like nature. I have seen a hickory tree, I suppose 18 inches in diameter, petrified—roots, limbs, bark, even to some limbs of small size. Whether petrifaction took place while standing, or not, I will not conjecture; it is now nearly half buried in the firm earth, situated near a small branch, on the side of a gentle slope, surrounded by its fellows not petrified, oak, hickory, and the ordinary growth of a large scope of country. It is about 25 miles from this city. A piece of it has been removed and placed near the church of Rev. J. W. Moore (a monument to his energy and faithfulness.) He has also some pieces placed at his residence. Why should that particular tree have been petrified—turned to stone, like "Lot's Wife" to a pillar of salt—in the midst of others and they not? This is a question I cannot answer. H.A

Little Rock, Ark., Sept., 1851.

ARCHITECTURAL DESIGNS.---Fig. 1.



It is our intention to present a number of architectural engravings in this volume; but the question with us is, what is there new in our architecture to present before the people?—Well, there is nothing, absolutely nothing; and whatever can be said that is of any value must come from those who have experience. Experienced architects, who have written books, are the true standards of architectural knowledge, for practice and study—the two essentials of good authorship, enter into their disquisitions. There can be no doubt, however, but that, for convenience and good arrangement of dwellings—the essentials of comfort—many good designs may be brought forward that will interest a great number; and, at the same time, a combination of neatness and a display of good taste may reign throughout the whole. But as there are many minds, so is there a diversity of tastes, and that which will please one, may have quite a different effect upon another, and vice versa. We therefore shall benefit and please some, and hope to interest all, although novelty cannot be reasonably expected.

The accompanying engravings represent a perspective view, figure 1, and plan view, figure 2, of a design for a small villa, designed by A. J. Davis, Esq., this city, and erected at Rahway, N. J., for L. B. Brown, Esq.

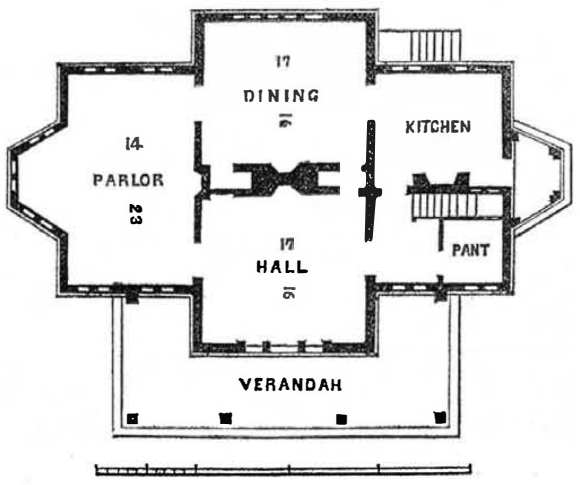
The plan of the principal floor shows, besides the entry, a parlor, a saloon, a dining room, a kitchen, and a pantry. Not an inch of space is lost, and the management of the stairs and passages, in the second story, is so complete that six good bed-rooms are afforded.

The exterior, without making pretensions to ornamental effect, is well composed; the proportions are good, the style is well expressed, and the whole is altogether satisfactory to the eye and the judgment.

The verandah, which extends along the front of the building, gives an expression of great comfort to every house, in a climate where shelter and repose are so necessary in certain hours of the day, as in ours, and where a verandah is, therefore, as indipensable as almost any apartment in the dwelling.

This building was erected for $2,300, and it has the comfortable quality of having a great deal of room on one floor. This is an advantage which those have who erect houses in villages and in the country, over those in the city, where every square foot of soil must nearly be covered with silver to pay for the privilege of erecting the domicile or warehouse.

Figure 2.



We shall present some designs, with specifications, of cheap houses for our mechanics, in order to set before them the advantages of trying to be lords of their own castles, instead of mere dwellers, for rental, within the walls of Babylon. Rents are higher in New York than any other city in the world.

Sound.

When cannons are fired at sea it is not the water that conveys the sound to an extraordinary distance, but the surface of the air resting on the water; when the trampling of horses is heard at a greater distance by putting the ear close to the earth than it is in, or through the body of the air, it is not the earth that conveys the sound, but the surface of the air resting on it; when the end of a beam of timber is scratched with a pin or nail, or gently knocked upon, it is not the timber that conveys the sound to the other end, but the surface round the beam forming one ring all over, and bringing it into one focus at the opposite end; hence the appearance as if the sound had come through the beam itself. It is the same with a poker struck against any substance to produce a sound; it is not the poker that conveys the sound to the ear held close against it, but the surface of the air by which it is surrounded: the poker, like other solid substances, does not convey the sound but gives it only its quality. I do not know whether they even may be called conductors, inasmuch as for conveyance they are entirely passive.—[Correspondent of the Builder.

[If this is true, how is it the air is such a good conductor of sound near the earth, water, wood, &c., and not so good at a distance from the surface of such bodies. The idea above is wrong, for if a poker is held in the mouth excluding the air, and the ears tightly closed, the sounds are heard more distinct still. Sounds are heard more distinctly under than above water. If the head be held under water, and two stones struck against one another under the water, the noise will appear to be as loud as the report of a cannon; this confutes the ideas set forth in the Builder. His idea about *passive* conductors is singular, and by applying the same logic to telegraph wires he will make them *non-conductors* of electricity.

LITERARY NOTICES.

MARINE BOILERS.—This is the title of a new work by B. H. Bartol, Engineer: it contains no less than 64 plates of Boilers belonging to as many of our steamboats, both sea and river vessels. Accompanying the engravings are full specifications of the dimensions of the boilers, their arrangement, with the size of the vessel, dimensions of the engines, paddle-wheels, &c. As a book of prac ical reference, it is invaluable, and it must have cost Mr. Bartol a great amount of labor to have collated it. One admirable evidence of its value is the consumption of fuel and the amount of water evaporated by 1 lb. of it, as set forth in the specification of each boiler. The work may be said to be composed of a simple statement of facts without the least attempt to theorize, excepting in one part, where Mr. Bartol gives his candid opinion respecting the best form of boiler; he prefers the drop flue boiler, but acknowledges that it is easier to ask "which is the best boiler," than to answer the question.

PEOPLE'S BOOK OF HISTORY.—This is a new work of no ordinary character, by Henry Howard Brownell, A. M., published by L. Stebbins, Hartford. Ct.: it is a subscription work, and is illustrated with numerous colored engravings by eminent artists. It contains 736 pages, and is well printed on good paper. The history of the Old World, before the Christian Era, comprises one important part, and the modern history of the Old World the other. To those who desire to possess a universal history of the old nations, this book must be very acceptable, as it compresses a vast amount of history into its pages: there is nothing redundant, every sentence is full of action, and sentimentalizing is wisely left out. There are a number of maps in it, and on that account it will be very useful to many readers—it is a work of good general history.

PRACTICAL MODEL CALCULATOR.—We have received the first two numbers of a work bearing the above title. by Oliver Byrne, and published by Henry Carey Baird, of Philadelphia. This work is to be compiled in 12 numbers: its objects are to establish model calculations to guide practical men and students. Its scope is similar to Dr. Gregory's Mathematics for practical men, but it is more discursive, and has the great advantage of being written at the present day, so as to bring forward the application of rules to our new modes of working in Engineering and Mechanics. It appears to us that Mr. Byrne is going to make a very excellent book, and we are sure it will be a most useful one.

PETERSON'S LADIES' NATIONAL MAGAZINE for October, is now ready and for sale by Dewitt and Davenport. The number is a good one. The same publishers have sent us "The Wedding Dress," a novel by Dumas—price 25 cents: also the life of the unfortunate Gen. Lopez, price 12 1-2 cts.

YEAST—This is the title of a very interesting work, styled a problem, by the author of "Alton Locke," published by Messrs. Harpers & Bros. We have seldom read a publication which pleased us more: it embraces a perfect portraiture of questions which are now agitating the minds of the rising generation.

NEW PROSPECTUS TO MECHANICS, INVENTORS, AND MANUFACTURERS.

SEVENTH VOLUME OF THE

SCIENTIFIC AMERICAN.

MESSRS. MUNN & CO.,

AMERICAN & FOREIGN PATENT AGENTS,

And Publishers of the SCIENTIFIC AMERICAN, respectfully announce to the public that the first number of VOLUME SEVEN of this widely circulated and valuable journal was issued on the 20th of September in AN ENTIRE NEW DRESS, printed upon paper of a heavier texture than that used in the preceding volumes.

It is published weekly in FORM FOR BINDING, and affords, at the end of the year, a SPLENDID VOLUME of over FOUR HUNDRED PAGES, with a copious Index, and from FIVE to SIX THOUSAND *ORIGINAL ENGRAVINGS*, together with a vast amount of practical information concerning the progress of INVENTION and DISCOVERY throughout the world. There is no subject of importance to the Mechanic, Inventor, Manufacturer, and general reader, which is not treated in the most able manner—the Editors, Contributors, and Correspondents being men of the highest attainments. It is, in fact, the leading SCIENTIFIC JOURNAL in the country.

The Inventor will find in it a weekly *DIGEST* of *AMERICAN PATENTS*, reported from the Patent Office,—an original feature, not found in any other weekly publication.

TERMS—$2 a-year; $1 for six months.

All Letters must be Post Paid and directed to

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128 Fulton sireet, New York.

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Any person who will send us four subscribers for six months, at our regular rates, shall be entitled to one copy for the same length of time; or we will furnish—

Ten Copies for Six Months for	$ 8
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